

The Best of SCROLLSAW  
Woodworking & Crafts Magazine

CREATING

# WOODEN BOXES

*on the Scroll Saw*



Patterns and Instructions for  
Jewelry, Music, and Other  
Keepsake Boxes

Материал, опубликованный авторским разрешением

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# What You Can Make

## Functional Boxes



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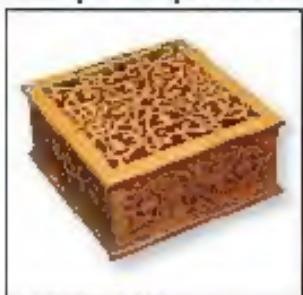


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## Puzzle Boxes



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# Introduction

*Scroll Saw Woodworking & Crafts* magazine presents a collection of the best box patterns for scroll sawers. On the following pages, you'll find patterns, tips, techniques, and stories from many of our contributors, hopefully along with inspiration to try the boxes shown in the book and your own variations and new creations.

The boxes contained here are broken down into categories—Fretwork Boxes, Segmentation and Intarsia Boxes, Layered Boxes, and One-of-a-Kind Boxes—to help you find just what you're looking for.

Hanging Backpack Box,  
by Sue Chrestensen, page 60





# Scroll Sawing Basics

If you're new to scroll sawing, read through the following information before you actually begin at your saw.

**Safety.** Though the scroll saw is a relatively safe tool, take the time to make sure you're working safely. Check that your work area is clean, well lit, well ventilated, and uncluttered. A dust collector, mask, air cleaner, or a combination of these items can help protect your lungs from fine dust. Wear some type of safety goggles just in case a piece of wood should break free and fly toward your face and eyes. Remove any loose clothing or jewelry before you operate the saw. Don't work while you are tired, and, of course, keep your hands and fingers a safe distance away from the blade.

**Tools.** Gather your tools before you begin so everything is close at hand. The projects here list the general tools you'll need and often give other suggestions and options. Remember, the lists are simply guidelines and you should always work with tools you feel comfortable using.

**Squaring the blade.** Before you begin any cutting, always check that your blade is square, or 90° to the scroll saw table. This will ensure your cuts are accurate. You can use any type of square to check the angle of the blade to the table. If you don't have a square, try the

kerf-test method using a piece of scrap wood. First, make a small cut, about  $\frac{1}{4}$ " long, in a piece of scrap wood about  $1\frac{1}{2}$ " thick. Stop the saw. Then, turn the scrap wood around until the cut is facing the back of the blade. Slide the wood across the table so that the blade fits into the cut. If the blade slips easily into the cut, it is square. If the blade does not slip easily into the cut, adjust the table and perform the test again until the blade slips in easily and is square.

**Stack cutting.** This technique of simply adhering together and cutting more than one piece of wood at the same time can save you time and effort. It can also ensure a better fit for identical pieces. Pieces of wood can be held together with double-sided tape, painter's or masking tape around the edges, or nails tacked into the waste areas of the wood. If you use nails, be careful that the ends of the nails do not poke through too much and scratch your saw table. If they do poke through, you can use a hammer or sandpaper to make them flush with the bottom of the stack.

**Familiarize yourself with the project.** It's always a good idea to read through the instructions before you begin to make sure that you understand everything that's involved.

# Tools and Supplies



Scroll saw and blades of choice.



Clamps.



Sandpaper.



Wood.



Drill and bits.



Finish of choice.

# Fretwork Boxes

Fretwork projects, boxes included, are often characterized by their large amounts of insole cuts and their sometimes delicate and difficult look. These boxes range from simple to more challenging, and they can be both functional and decorative.

Gentleman's Box,

by John A. Nelson, page 22.



# Swan Lake Keepsake Box



often find creative inspiration in common items we see every day but take for granted. I was doodling with a drawing program on my computer when I realized I could make boxes in a variety of styles and sizes. Boxes are fun to make. They are also great gifts with that handmade, personal touch.

Carefully consider the type of wood you want to use. New scrollers may want to try basswood, white pine, sugar pine, or any kind of cedar. Remember, the softer the wood the easier it is to cut. I made the box you see in the photo from genuine mahogany.

Elegance and grace  
are always in style

By Diana Thompson

## TIP CLAMPING HINT

Clamping blocks to the work piece helps hold it steady and level while cutting. Attach the clamps only tight enough to hold the work and not so tight that the blade cannot move through the kerf



1

**Photocopy the patterns.** To make the box, begin by spraying the pattern for the box sides with temporary bond spray adhesive. Attach it to the  $1\frac{1}{2}$ " to  $1\frac{1}{4}$ " stock. Use a drill with a  $\frac{1}{8}$ " diameter bit to make blade entry holes in each opening. A larger bit, such as one with a  $\frac{1}{4}$ " diameter, can also be used.



2

**Cut the inside line.** Thread the #7 blade through the entry holes and begin cutting. Cut only the inside line, leaving the outside line to be cut later. Do not remove the pattern.



3

**Sand the underside smooth.** Use 220-grit sandpaper.



4 Apply wood glue to the underside.



5 Glue the box sides to a piece of  $\frac{1}{2}$ " stock, leaving a small margin around the edge. Approximately six clamps are needed. Only two are shown here for clarity. Allow the glue to dry at least an hour.



6 Cut around the outside line of the box sides. Use the #7 blade. You are now cutting through both thicknesses.



7 With a  $\frac{3}{8}$ -diameter router bit, round over the bottom edge of the box. Use a rotary tool fitted into a router table attachment. This step can also be done by hand with sandpaper.



8 Making the lid. Cut two pieces of  $4'' \times 7'' \times 6\frac{1}{2}''$  stock. Adhere the lid and lid underside pattern. If you use plywood, be sure both lid patterns are adhered to the good sides so the unfinished sides of the plywood will be glued together, leaving the good side showing. Drill blade entry holes in all facets of the lid's underside and underside with a  $\frac{1}{8}$ " diameter bit. Thread a  $\frac{1}{8}$ " reverse-tooth blade through the hole and cut out only the inner line, as was done in step 2.



9 Lid and lid underside are cut and ready to glue together.



**10** Glue the two lid sections together with the pattern sides facing out. Clamp the two sections into place as in Step 5 and allow them to dry for at least an hour. About six clamps are needed. Only two are shown for clarity.



**11** When the glue is dry, cut around the centerline of the lid on the side as in Step 6. You're cutting through both thicknesses.



**12** Round over the upper and lower edges of the lid as in Step 7.



**13** Prepare the work piece. Cut out the handle pattern with scissors and fold it along the dashed line. Apply temporary bond spray adhesive to the back of the pattern and wrap it around two sides of the  $\frac{1}{4}'' \times 7'' \times 2''$  wood. Drill a blade entry hole in the left side using a  $\frac{1}{16}$ -inch diameter bit.



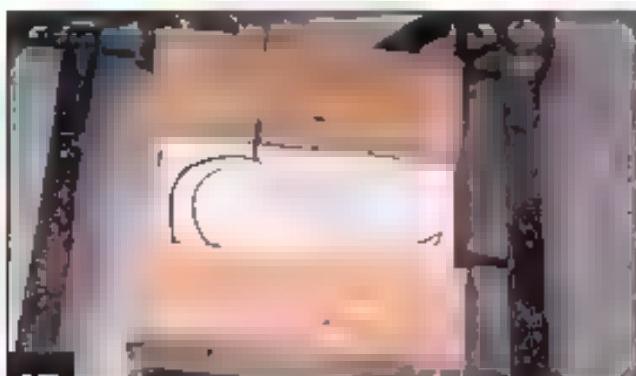
**14** Cut the handle. Thread the #5 blade through the entry hole. Cut the inside first, leaving it in place. Then cut the outside lines.



**15** Tape the block. Allowing the figure to rest naturally in the block, gently pinch the sides together and tape around it with  $\frac{1}{2}$ " cellophane tape.



**16** Tap the block on the saw table to ensure the figure is flush inside the block.



**17** Cut the left side.



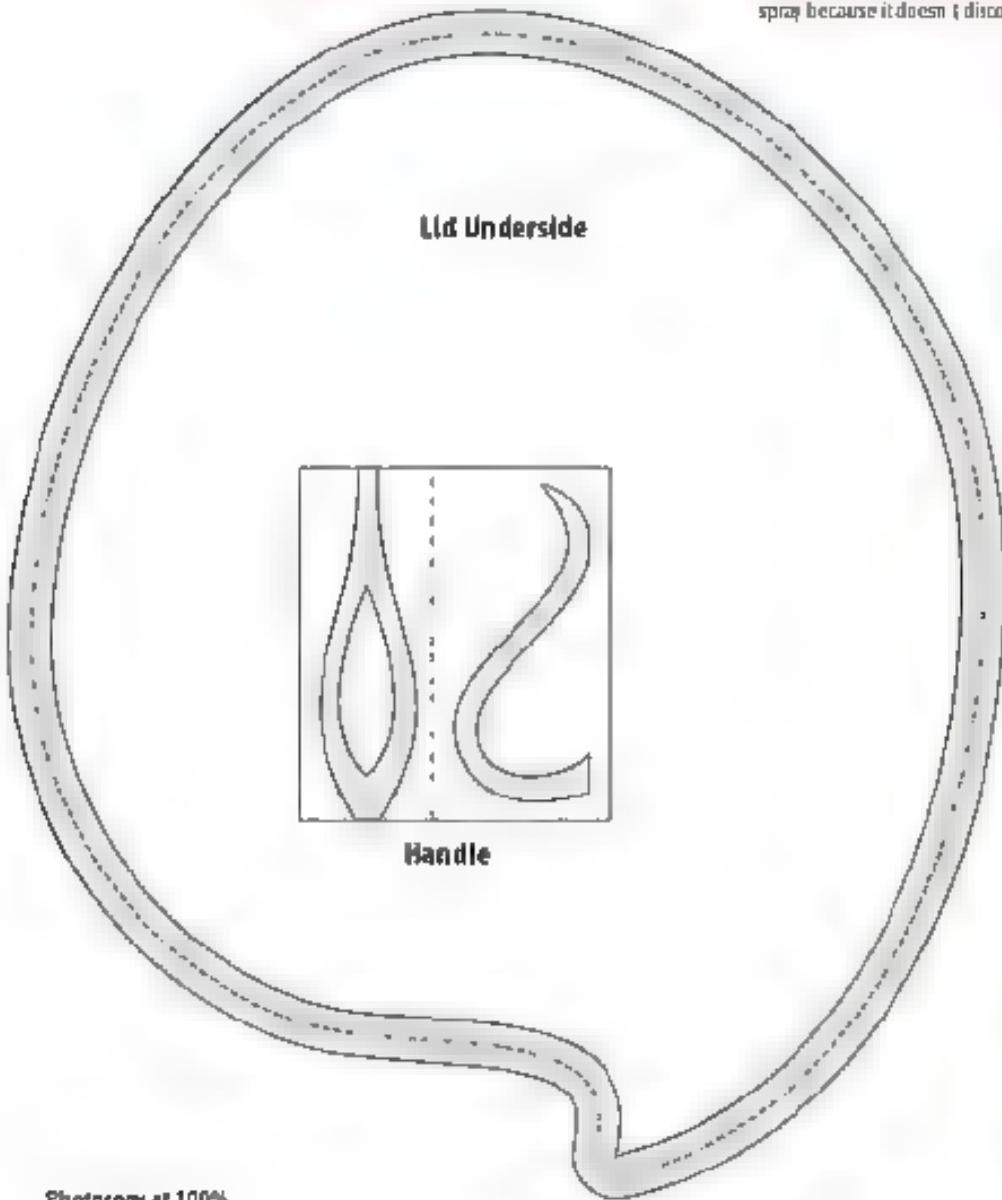
18

Gently remove the figure from the block.



19

Finish the box. Apply a wood sealer to all pieces—prefer a water-based sealer due to the easy cleanup. However, it will raise the grain a bit, so after the sealer is dry, sand the box smooth with 220-grit sandpaper and finish with #00000 steel wool. Glue the handle to the box lid. Apply several coats of clear finish. I use Krylon spray because it doesn't discolor over time.



#### Materials & Tools

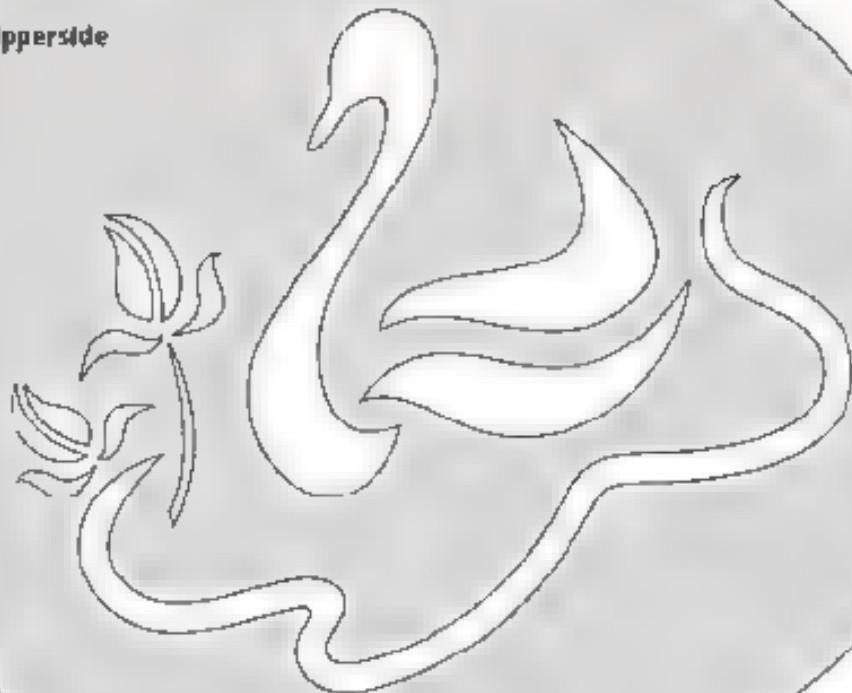
##### Materials:

- 1 piece, 4½"-14" x 6½" x 6" wood of choice (box sides)
- 3 pieces, 6" x 7" x 6½" wood of choice (box bottom and lid sections)
- 1 piece, 4½" x 1" x 2" wood of choice (handle)
- Temporary bond spray adhesive
- Wood glue
- Sandpaper, 220 grit
- #00000 steel wool
- Wood sealer
- Clear finish of choice

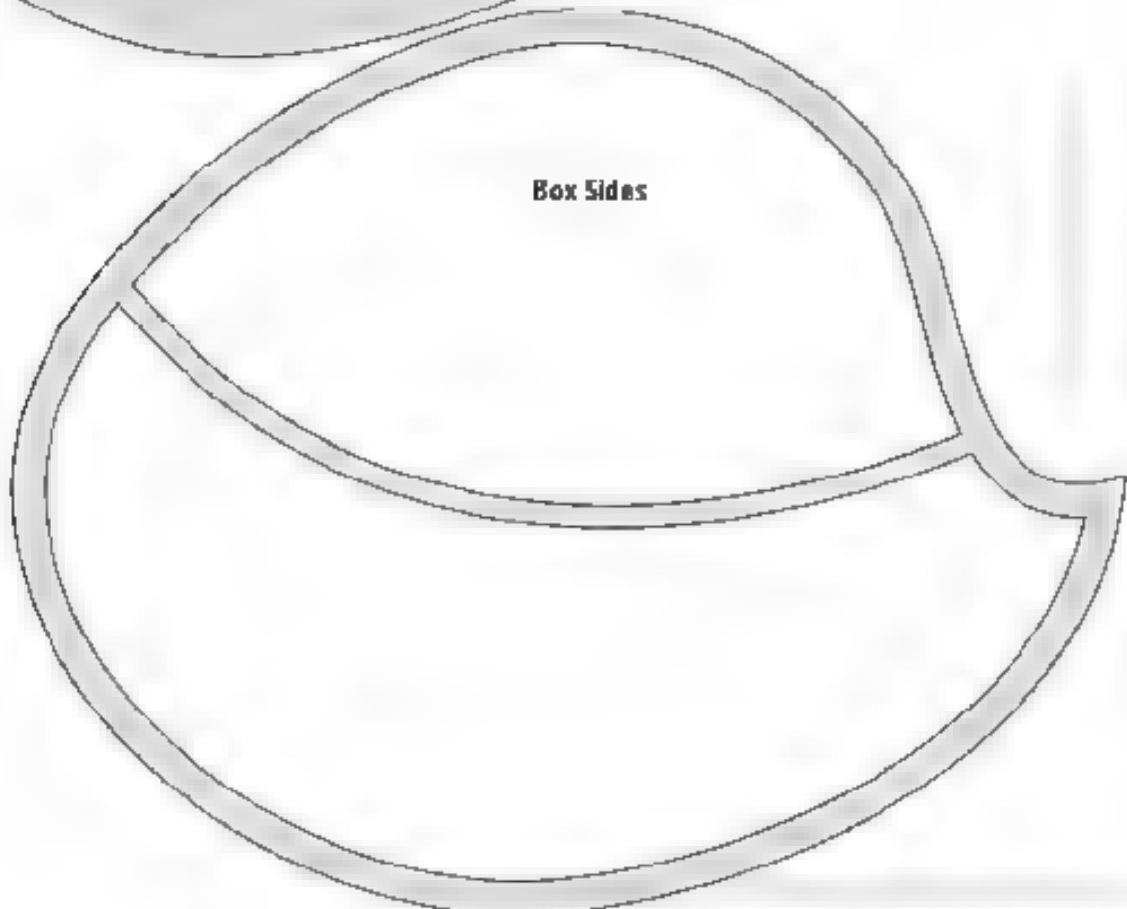
##### Tools:

- #5 blade, #5 reverse-tooth blade, and #7 blade
- Drill with  $\frac{1}{8}$ "- and  $\frac{1}{4}$ "-diameter bits
- Biscuit tool and  $\frac{1}{4}$ "-diameter round-over bit (optional)
- 6 clamps

Lfd Upperside



Box Sides



# Potpourri Box

This attractive potpourri box quickly converts to a tea light candleholder.

By Sue Mey

Nothing makes a place smell more like home than potpourri, but it tends to get everywhere—especially if you have furry friends. To keep the dried flowers and herbs where they belong, use a potpourri box.

This potpourri box with lid was inspired by celestial bodies. I stack cut the pattern and made one in hardwood and another in medium density fiberboard (MDF), which I painted. The item can also be used as an attractive tea light or hot candleholder without the lid. Do not place the holder in a draft, which could bring the flame into contact with the wood. Constant supervision is advised.

**Step 1: Sand all hardwood pieces.** Use a palm sander with 320 grit to sand both sides. This reduces the hand sanding after cutting. MDF does not require pre-sanding.

**Step 2: Attach the patterns to the wood.** Photocopy the pattern pieces at 100% and attach them to the wood using temporary bond spray adhesive. Or, for simple patterns such as these, I like to transfer the pattern to the work piece with carbon paper and a stylus. Keep the pattern in place with two small pieces of masking tape.

**Step 3: Tape two or more blanks together to stack cut the box.** To create multiple boxes at once, attach extra layers of wood or MDF to the piece with the pattern on it using small strips of thin double-sided tape at the corners to hold the layers together. **Note:** The lid liner can not be stack cut because it will be attached to the lid before the pierce cuts are made. They can, however, be stacked for the disc sander process (see Step 8), before you attach a separate pattern to each lid liner.

Stack this box to hold aromatic potpourri or watch a candle flame dance through the etched-out images. Never use the lid or leave unattended. When burning a candle in the holder,

**Step 4: Drill the blade entry holes.** Use the  $\frac{1}{8}$ "-diameter bit for the box sides and the  $\frac{1}{16}$ "-diameter bit for the features of the sun pattern. **Note:** Do not drill the lid liner blade entry holes at this time.

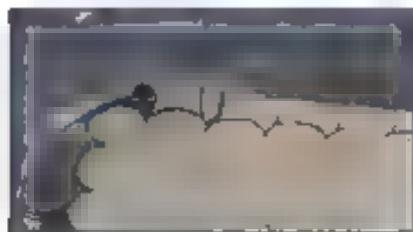
**Step 5: Remove the burrs created by drilling the holes.** Use a scraper blade at a slight angle along the grain of the wood.

## TIP A BIT OF GOLD

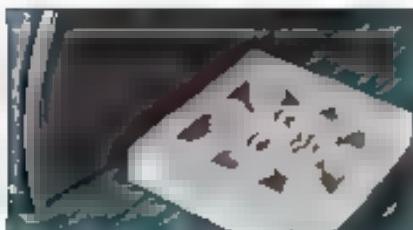
If you decide to make the painted MDF box, splatter a little bit of gold paint on the box to add texture. Working fast, spray some gold paint onto paper, dip an old toothbrush into the paint, and run a plastic ruler over the brush. Vary the direction of the spray onto the box to avoid uniform splashes. Or, if you don't mind getting paint on your fingers, dip your middle finger in the paint and flick the paint randomly on the box.



**▲ Step 6: Make the inside cuts on the four box sides.** Thread the #5 blade through the blade entry holes and make the inside cuts of the box sides—you can stack cut two layers at the same time. Use a #3 blade for the sun's features. **Note:** Do not cut the lid liner at this time.



**▲ Step 7: Cut the scalloped edge of the lid and base.** To do this neatly, cut into the sharp point from the edge, back out of the cut, and then cut into the sharp point from the other direction.



**▲ Step 8: Square the edges of the sides and lid liner on the disc sander.** For this project, edges should line up nicely, and I find using the disc sander much easier than attempting to cut perfectly straight edges with the scroll saw.

**Step 9: Separate the wood layers.** Insert a scraper blade between the work pieces to pull them apart. Remove the sticky tape residue with a rag and some mineral spirits. Allow them to dry.



**▲ Step 10: Apply wood glue to the back surface of the lid liner.** Then, center the liner on the inside of the lid. Clamp the four corners and the center. Remove excess glue with a damp rag or toothpick. Once dry, apply/copy the pattern for the pierce cuts, if not done earlier. Drill blade entry holes and make the cuts.

**Step 11: Sand the hardwood pieces by hand.** Use 320 grit, after removing the patterns. Then, switch to 500 grit to get a smooth finish. Only lightly sand the cut edges of the MDF to remove any burrs.

**Step 12: Glue the box.** First, remove all sanding dust. Dry-fit the four box sides on the base to ensure all edges line up nicely. If needed, mark any adjustments and sand them to shape. Apply wood glue to the box sides, one at a time, and place them on the base. Hold the four box sides in position with both hands. Then, center them on the base and press down hard. Exert equal pressure on the sun and moon face sides to ensure the moon and star sides are firmly attached. Remove excess glue with a toothpick or damp rag. I do not use clamps, but you may need to use them depending on the glue you choose.



**▲ Step 13: Apply the finish.** For the hardwood box, apply a deep penetrating furniture wax liquid with a medium-size artist's



brush. The brush will reach the nooks and crannies of the pierce cuts. Place the box and lid in the sun to dry. If this is not possible, allow a day or two before varnishing. Wipe all box surfaces with a dry lint-free cloth. You can also apply Danish oil according to manufacturer's directions.

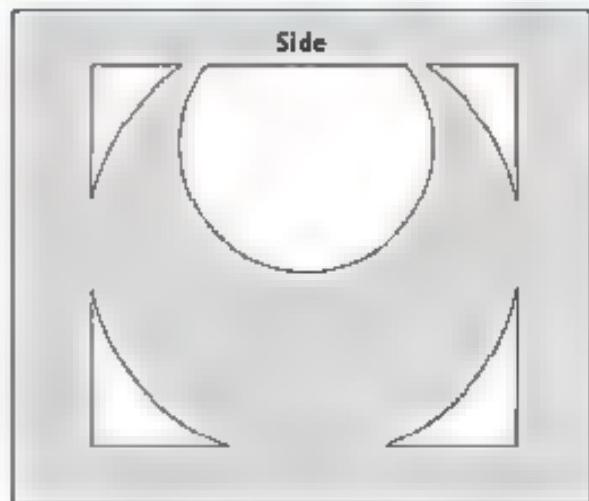
For the MDF box, spray the inside and outside of the box and lid with several thin coats of spray paint, allowing it to dry completely between coats. Remove spray paint from fingers and utensils with lacquer thinner.



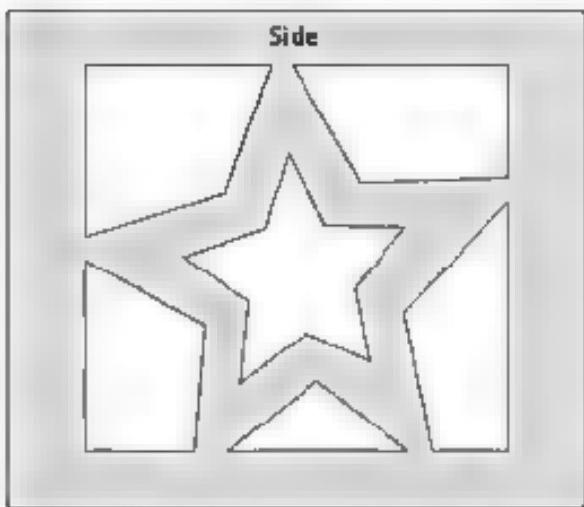
**▲ Step 14: Apply the final finish.** Apply several thin coats of clear spray varnish to the hardwood box, allowing it to dry thoroughly between coats. The painted box does not need to be varnished. Fill the box with your favorite mix of potpourri; replace the lid, and place it near an open window to disperse the fragrance into the room. Alternatively, light a fragrant tea light and place it inside the open box. **Notes:** Never use the lid with a candle—and never leave a burning candle unattended!

#### TIP WARMING UP WAX

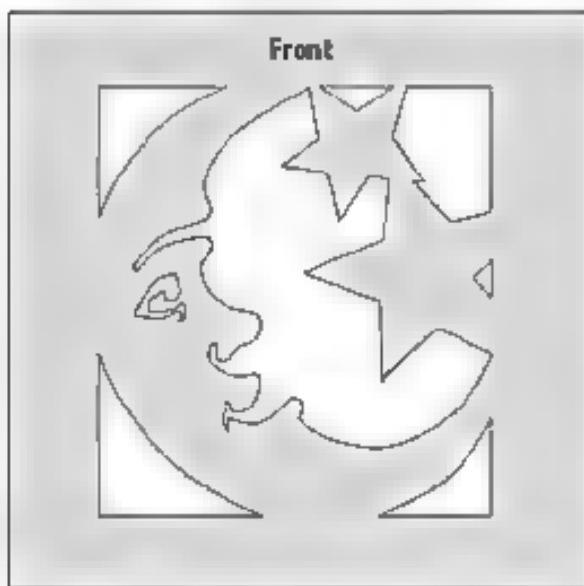
Pour the wax liquid into an old ceramic mug and heat it in a microwave oven for 75 seconds. This allows the wax to liquefy and penetrate the wood without leaving a waxy layer.



**Side**



**Side**



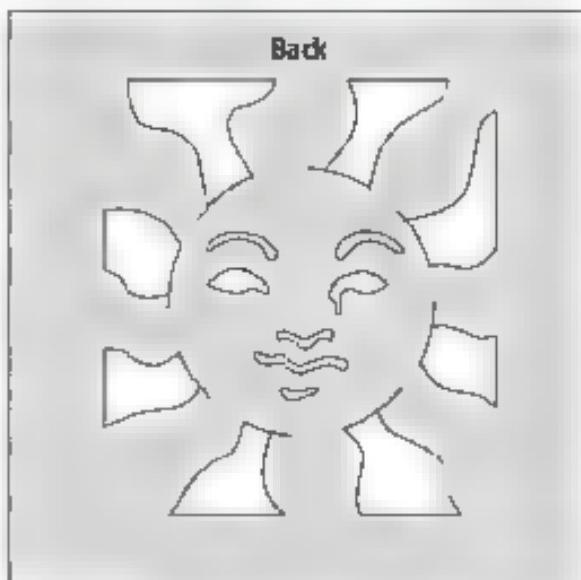
**Front**

#### Materials:

- 14" x 12" x 3/4" hardwood or choice or MDF (box sides)
- 14" x 8" x 4" hardwood or choice or MDF (base and lid)
- 4" x 2½" x 2½" hardwood or choice or MDF (lid lined)
- Sandpaper, assorted grits
- Temporary bond spray adhesive or carbon paper and stylus
- Thin double-sided tape
- Spray paint in color of choice (finishing MDF)

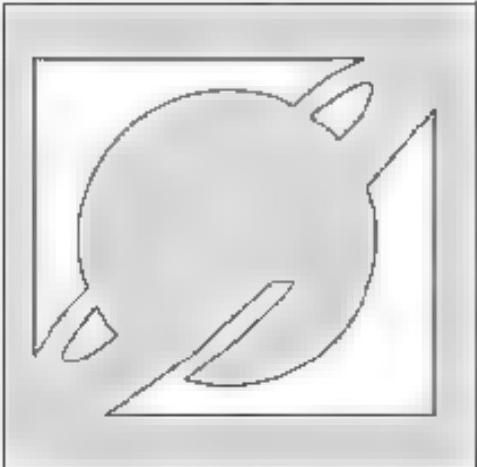
#### Materials & Tools

- Quick-dry wood glue
- Damp rag to remove of excess glue
- Deep penetrating furniture wax/liquid or Danish oil and an artist's brush
- Clear spray varnish
- Tools:
  - #5 reverse-tooth blade
  - #10 reverse-tooth blade
  - Drill press with 1/8" and 1/4" diameter bits
  - Disc sander and palm sander
  - Small clamp



**Back**

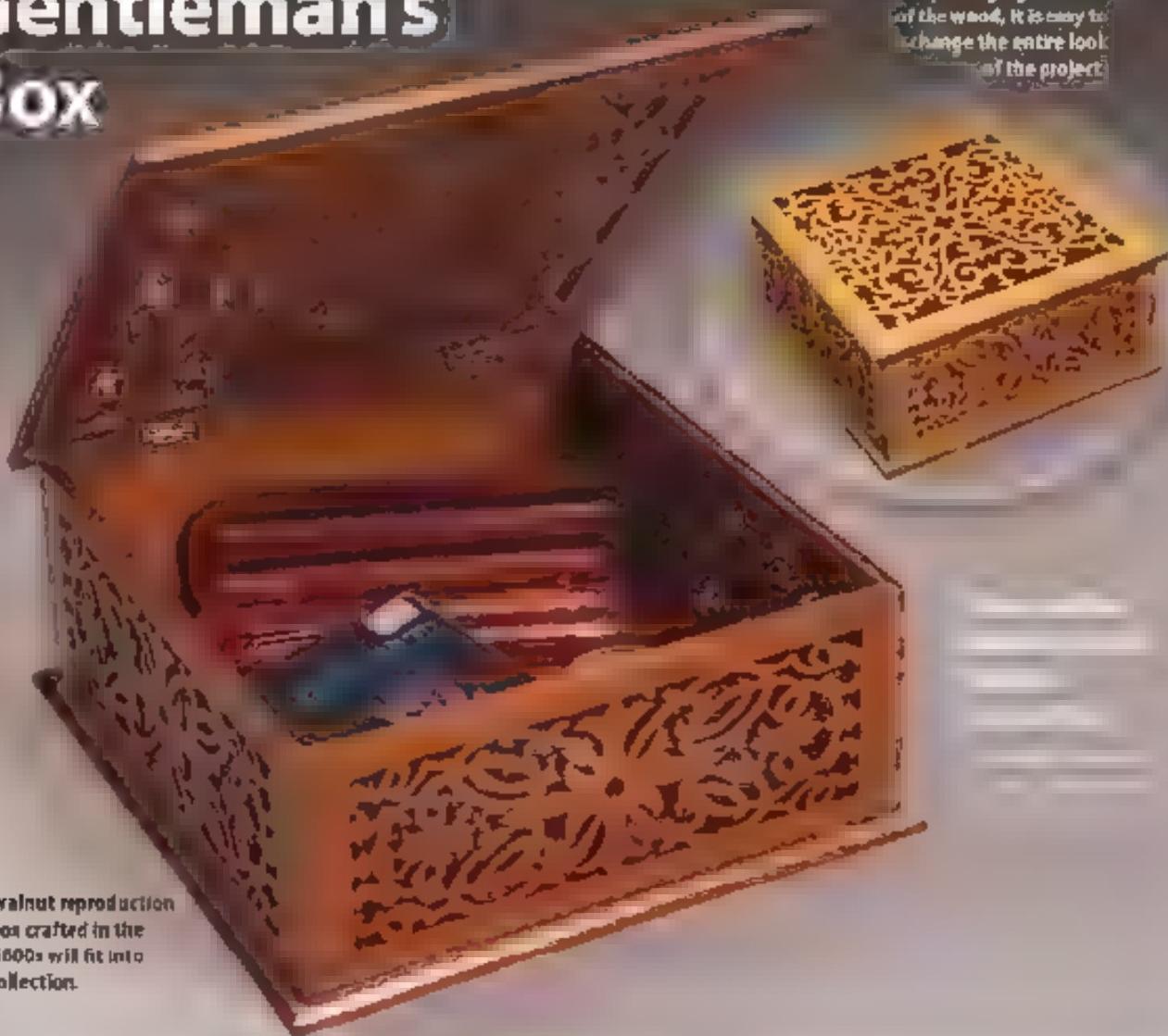
**Lid and base (outer line only)**



**Lid liner**

# Gentleman's Box

By changing the color of the wood, it is easy to change the entire look of the project.



This walnut reproduction of a box crafted in the late 1800s will fit into any collection.

I found this beautiful, simple box in an antique shop along Route 1, just south of Kennebunkport, Maine. The original was made of walnut. A silk lining was first glued to a cardboard backing before both were glued into the box.

**Step 1: Choose wood with an interesting grain pattern.** I suggest walnut, maple, or black cherry. If needed, glue up material to make the lid and the bottom. Cut all of the wood to size using the provided materials list.

**Step 2: Cut a 6° bevel on all four edges of the top to knock off the sharp corners.** If you are confident cutting the bevels on the scroll saw, simply tilt your table down 6°. Alternatively, you can sand the bevel using your sander of choice. These bevels are just embellishments that appeared on the original—you can make a box without the bevels if you want.

**Step 3: Sand all the surfaces of the top.** Be careful not to round over any edges.

**Step 4: Cut the bottom to the exact size.** Put a 30° bevel on all four edges. Use the techniques explained in Step 2. Again, sand all of the surfaces of the bottom, but be careful not to round over any edges.

**Step 5: Cut all four sides to size.** Cut an exact 45° bevel for the miter joints on the sides of each piece. If you don't have a table saw to cut the miters, use a disk sander with a miter gauge. Set the miter gauge to 45° and slowly sand the edge down to the proper miter. You can cut

the miters with a scroll saw, but it is difficult to get the miters to fit tightly.

**Step 6: Use masking tape to tape the four sides together.** Make sure all the joints fit together exactly (see Making Miter Joints).

**Step 7: Cut a sub-base to fit tightly inside all four sides.** This helps the box hold its shape. Plywood is recommended to reduce any expansion (or contraction) in one direction. The sub-base can be embellished with felt, flocking, or silk.

**Step 8: Remove the tape.** Then, sand the top and bottom surfaces of the sides.

**Step 9: Mark and notch one side for the hinges as shown on the pattern.** Re-sand that side, which will be the back of the box to make sure it's smooth.

**Step 10: Prepare the lid.** Center the lid pattern on the top and attach it using temporary bond spray adhesive. Then, drill blade entry holes to make the interior cuts.

**Step 11: Cut out the pattern.** Use a #2 or #3 blade or your blade of choice.

**Step 12: Sand the top and bottom surfaces of the lid.** Use fine-grit sandpaper.

**Step 13: Prepare the sides.** Make three copies of the side pattern and attach them to the right side, left side, and front blank using spray adhesive. Do not attach a pattern to the back piece, which was notched for the hinges.

**Step 14: Drill blade entry holes and cut out the fretwork on each side.** Alternatively, stack all three sides together and wrap all four edges with masking tape. Then, you can stack out all three sides at once

**Step 15: Sand all of the sides' surfaces with fine-grit sandpaper.**

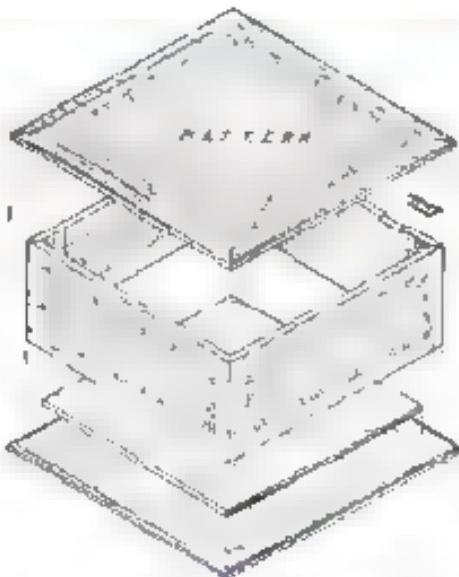
**Step 16: Apply wood glue to the 45° miter cuts on all four sides.** Using the masking tape technique explained in Step 6, assemble all four sides, and allow the glue to dry. Remove any excess glue.

**Step 17: Center the four sides on the base and insert the sub-base from the top.** Predrill holes from the base into the sides, and insert tiny brads for a permanent assembly.

**Step 18: Apply the finish of your choice.**

**Step 19: Attach the lid with two brass hinges.** Again, predril the holes for the screws so you don't split the wood.

**Step 20: Cut cardboard to fit the four sides and lid (optional).** Add silk, felt, or your covering of choice to the sub-base of the box (optional). You can also paint the cardboard and glue it in place. The original had silk glued to the cardboard liner on the four sides and lid. Alternatively, you could add flocking according to the manufacturer's directions.



#### Materials & Tools

- 2 pieces 4½" x 9½" x 9½" hardwood of choice (top and bottom)
- 4 pieces ¾" x 3½" x 8½" hardwood of choice (sides)
- 1 piece 8½" x 8½" plywood of choice (sub-base)
- 2 brass hinges, ¼" x 1"
- 12 brads, ½" long
- Silk backing over cardboard or flocking of choice
- Wood finish of choice
- Wood glue
- Masking tape
- Repositionable spray adhesive

#### Tools

- #3 blades or blades of choice
- Drill with ½"-diameter drill bit
- Assorted grits of sandpaper

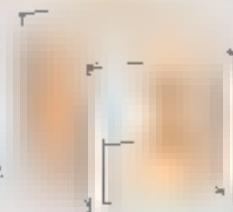
#### MAKING MITER JOINTS

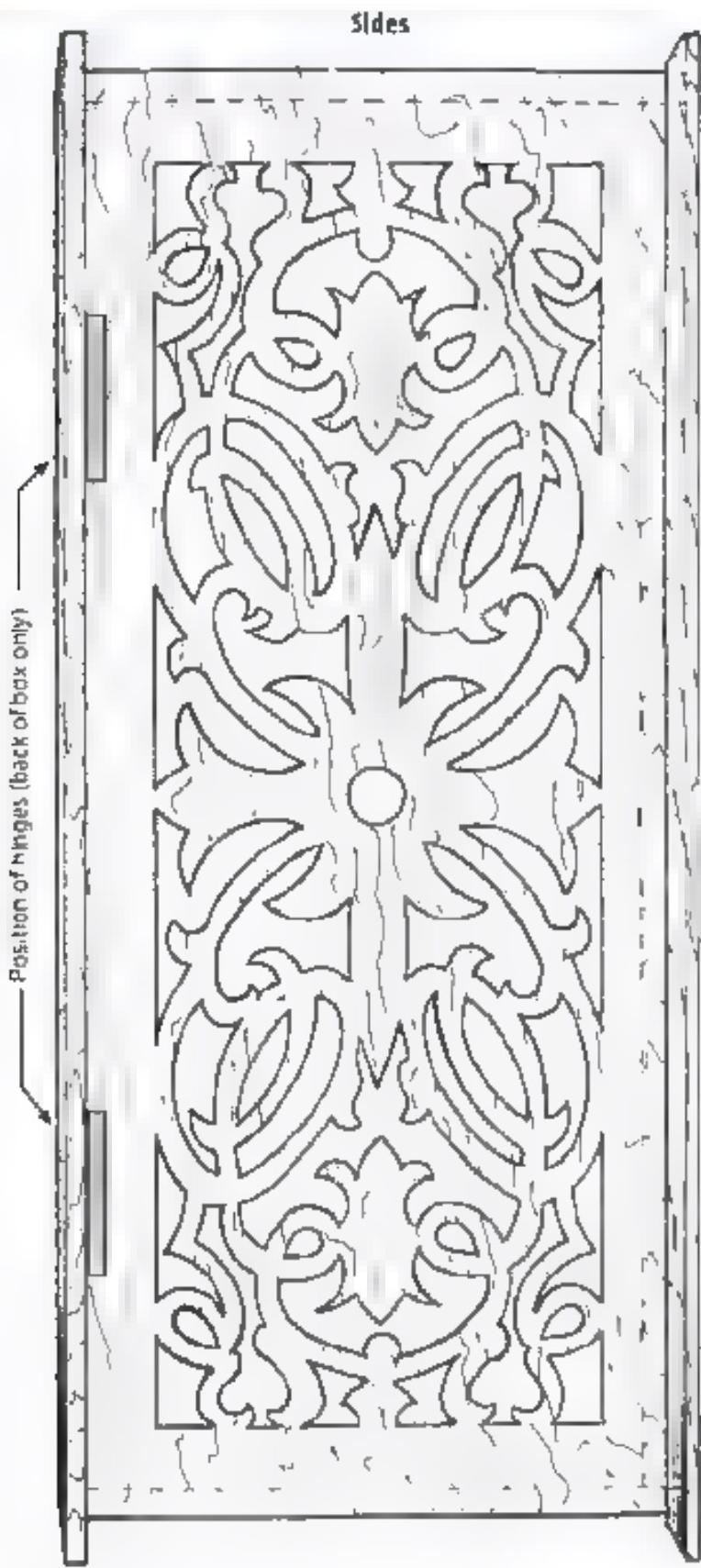
There are several ways to

glue up a miter joint box.

For beginners, the easiest way is to use the tape method.

Start by cutting four lengths of tape slightly shorter than the height of the box (approximately 3"). Place the tape face up on the workbench and stick side one of the box to the tape. Align the edge of side two exactly alongside the edge of side one (see diagram) and press both sides firmly against the tape. Apply wood glue to all the joints and bring side four back around to join side one. Check to make sure the box is square using a square to check the outside corners or by inserting the sub-base into the box.



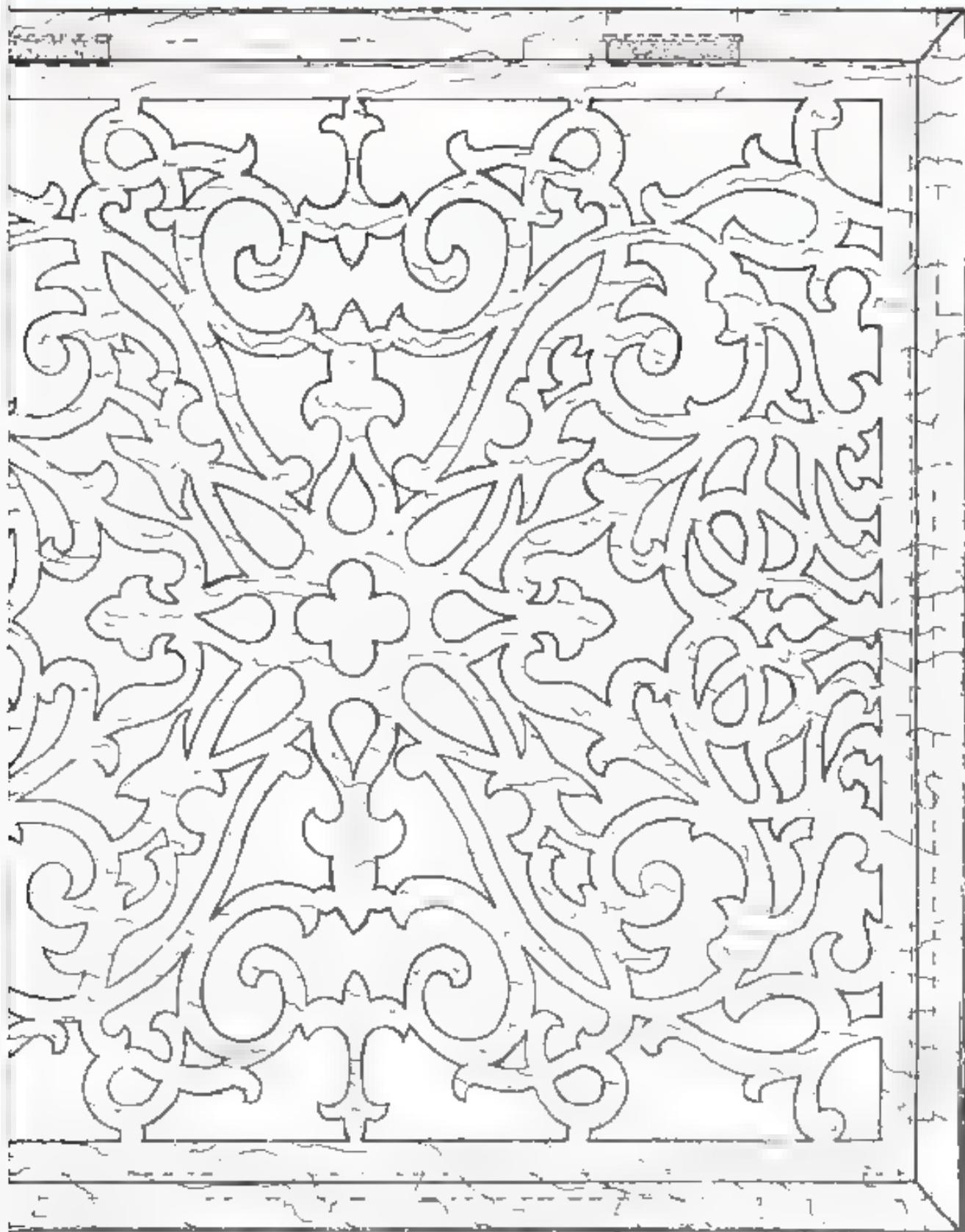


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Cut perimeter only for box bottom

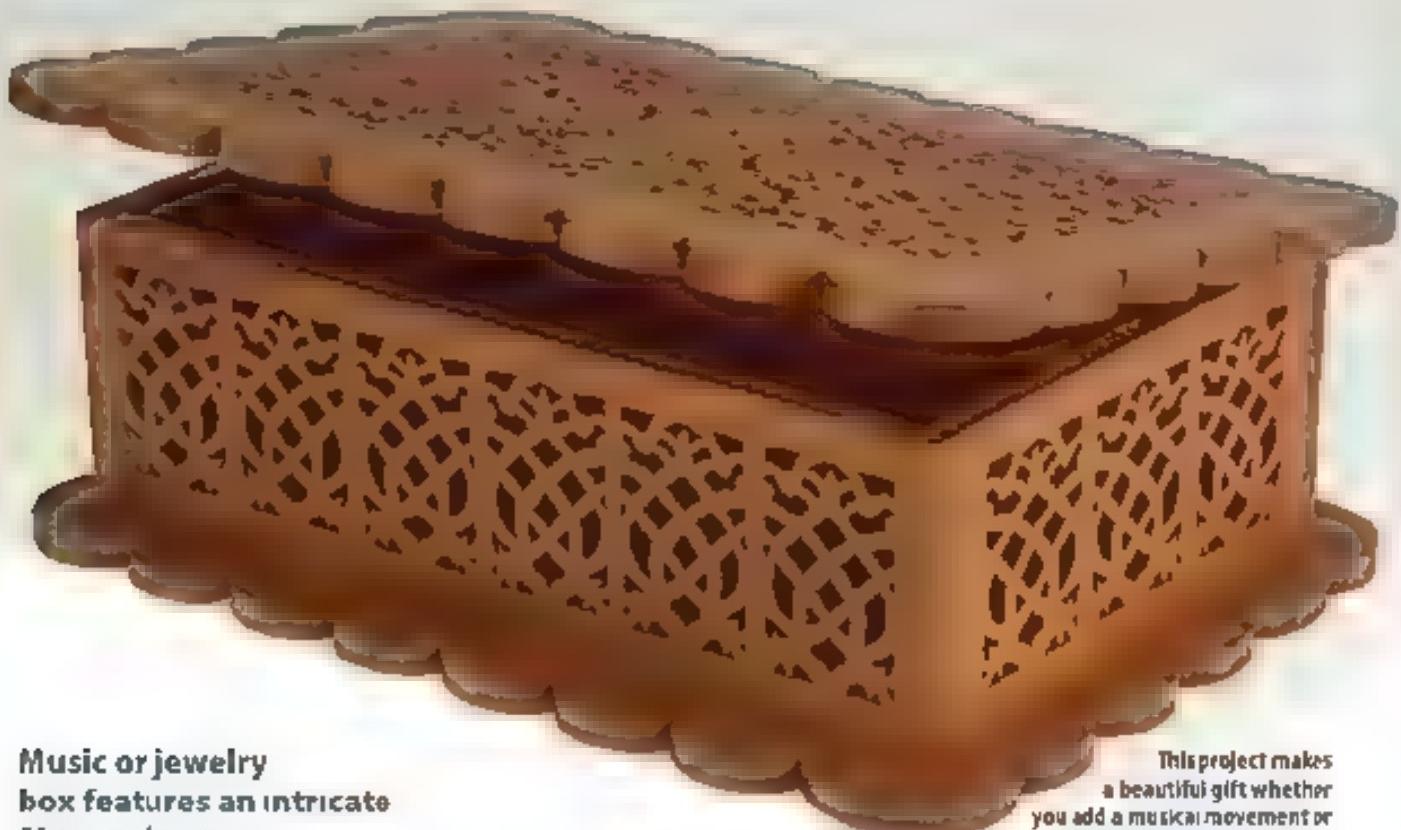
**Top and Bottom**



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Top and bottom shown here to facilitate placement

# Renaissance Keepsake Box



**Music or jewelry  
box features an intricate  
filigree design**

*By Rick and Karen Langabaugh  
Cut by Ben Fink*

Handmade gifts make a lasting impression. This vintage-inspired keepsake box is sure to impress even the most discerning recipient. Choose a musical movement that plays a tune with a special meaning or leave the bottom solid so the intended recipient can use it as a trinket or jewelry box.

This box is made from Honduras-mahogany but a variety of woods are suitable. Cut the pieces to the proper dimensions. Cut the fretwork design in the lid before cutting the perimeter. Stack the top and bottom together to cut the scalloped borders at the same time. If you make small errors while cutting the perimeter, the two pieces will be identical, and the mistakes will be less noticeable. Stack-cut the long and short sides to speed production time.

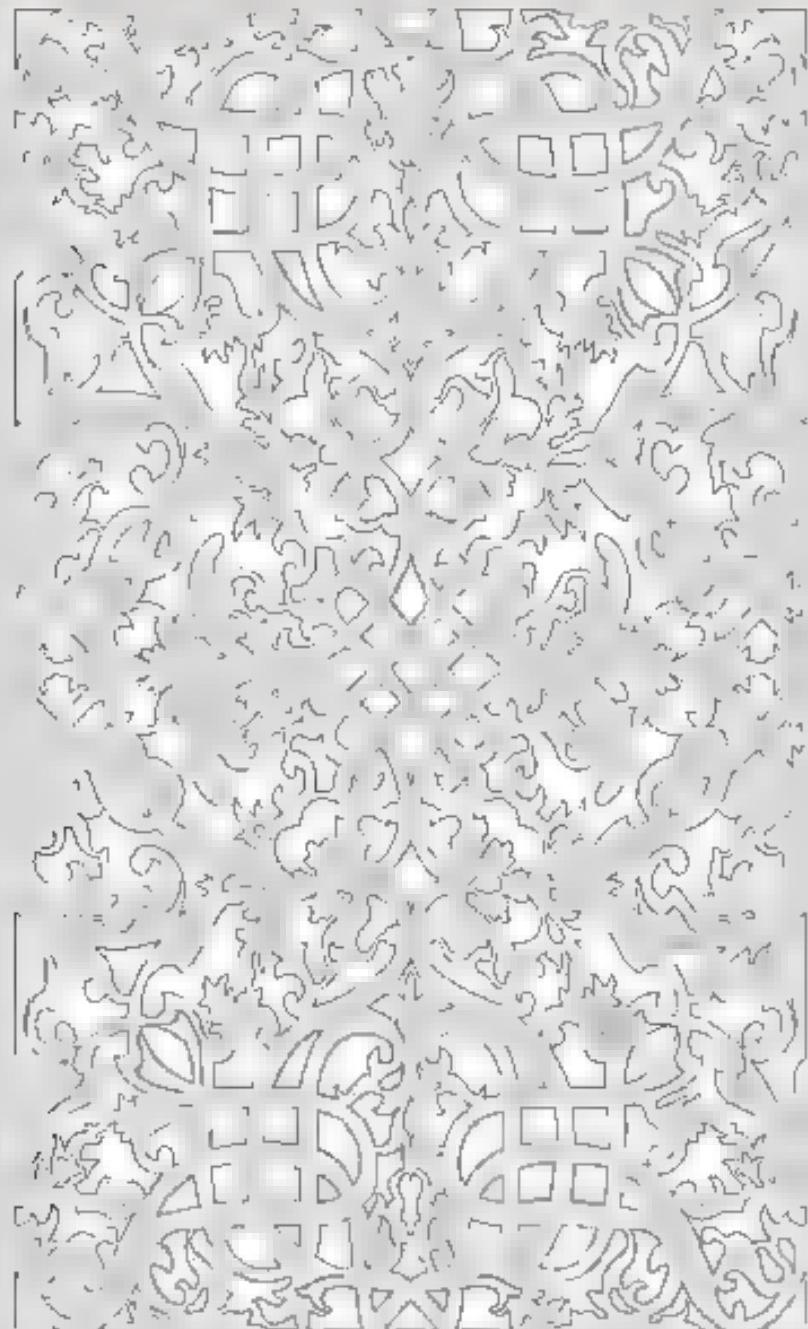
*This project makes a beautiful gift whether you add a musical movement or present it as a keepsake box.*

If you are installing a musical movement, drill the  $\frac{3}{8}$ " diameter hole for the music box key where indicated on the pattern. If presenting the box without the musical movement, the feet to raise the box are optional. Cut the feet using standard compound-cutting techniques.

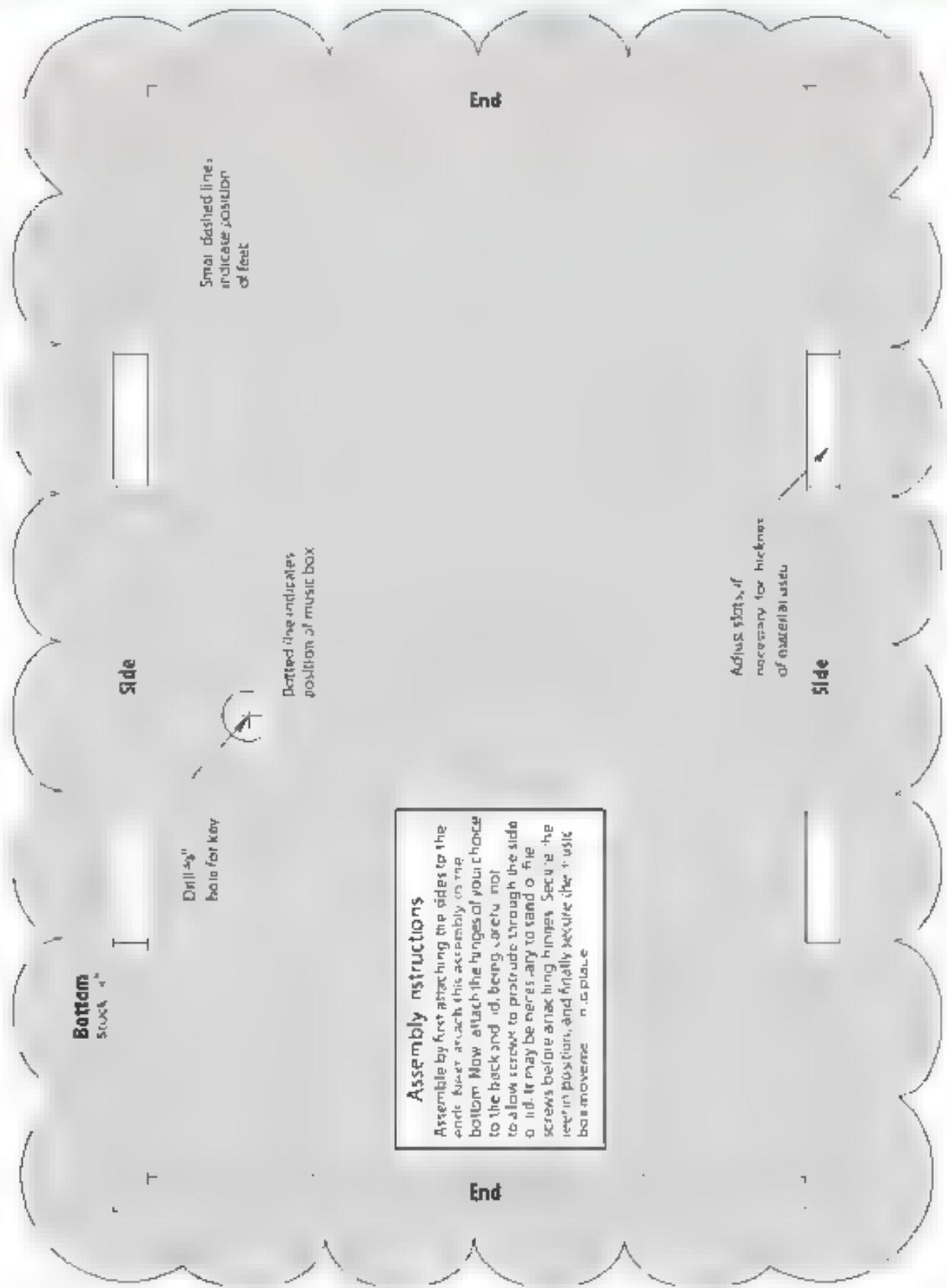
After cutting all of the pieces, glue all four sides to the bottom using the dotted lines on the pattern as a guide. Tabs on the long box sides make alignment easier. Glue the feet to the bottom of the box. Apply your finish of choice to the assembled box and the lid. Then, install the music box mechanism and attach the lid to the box using small brass hinges. Use thin plywood or cardboard wrapped in felt for an optional lining behind the fretwork sides and lid.

**Lid**  
Stock

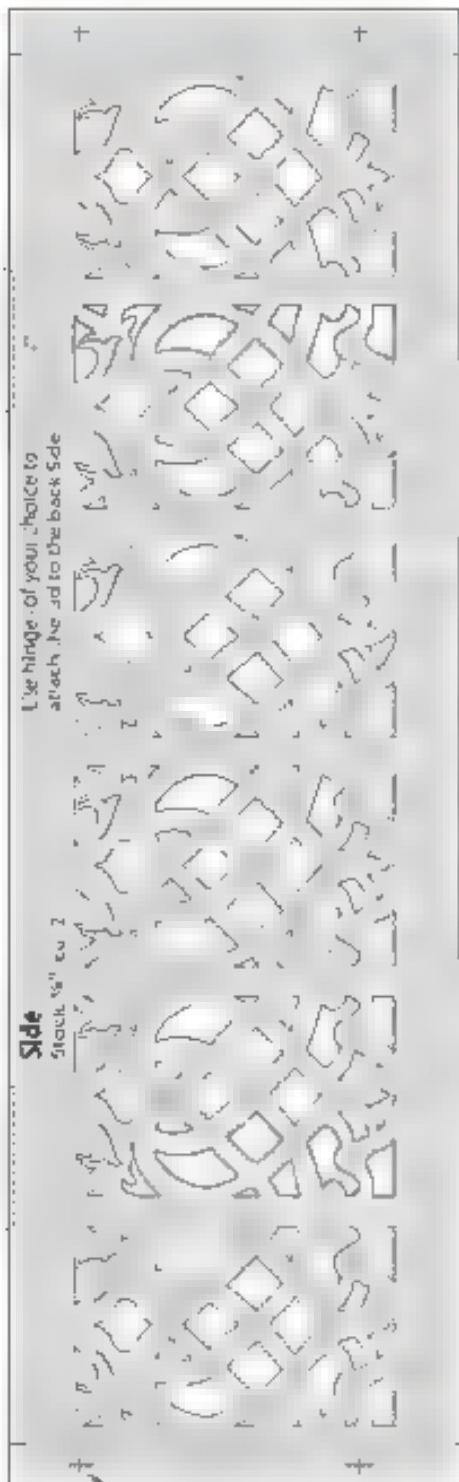
Use hinges of your choice to attach the lid to the back



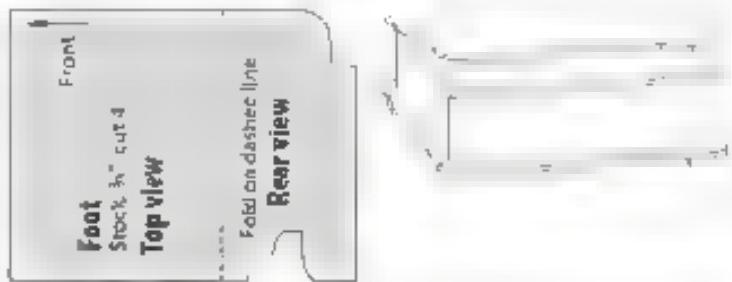
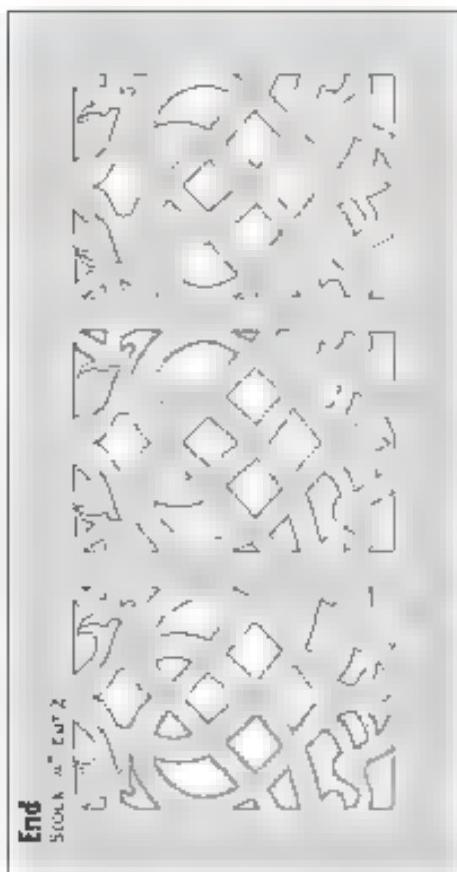
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Photocopy at 100%



Attach ends with glue  
and finishing nails



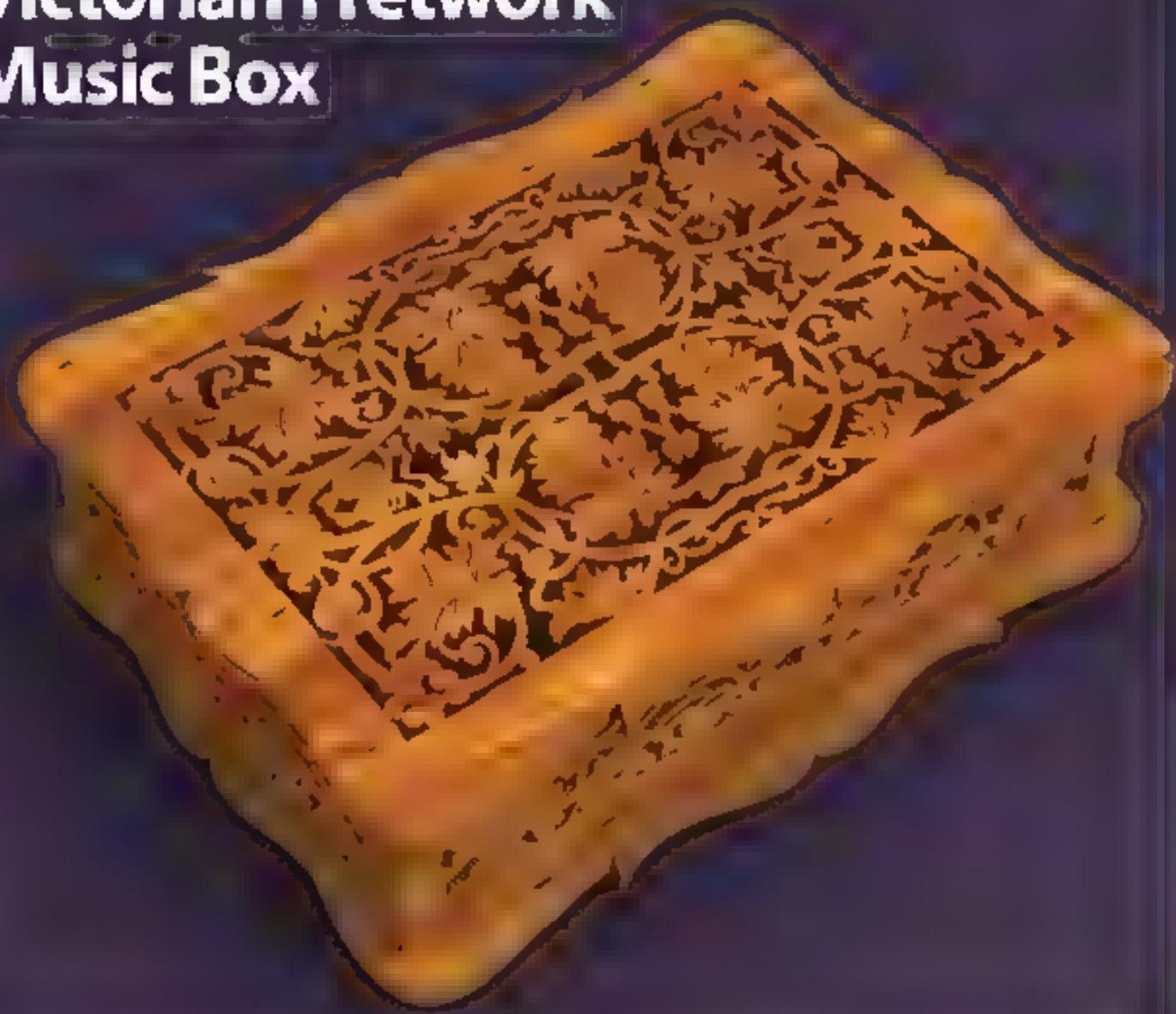
#### Materials

- 2 pieces  $4'' \times 7\frac{1}{4}'' \times 10''$  wood of choice (lid and bottom)
- 2 pieces  $4'' \times 3'' \times 8\frac{1}{2}''$  wood of choice (sides)
- 2 pieces  $4'' \times 2\frac{1}{4}'' \times 4\frac{1}{2}''$  wood of choice (ends)
- 4 pieces  $\frac{3}{4}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  wood of choice (feet)
- Music box mechanism (optional)
- Small brass hinges with matching screws
- Assorted grits of sandpaper
- Temporary bond spray adhesive
- Wood glue

#### Materials & Tools

- Brads (optional, to hold sides together when glued)
- Finisher (optional)
- Felt (optional)
- Tools:**
- #7 reverse-tooth blades or blades of choice
- Drill with  $\frac{1}{8}''$  and  $\frac{1}{4}''$  diameter drill bits
- Screwdriver to install small brass screws
- Hammer (optional)
- Brushes to apply finish of choice (optional)

# Victorian Fretwork Music Box



**Classic details provide  
an impressive look,  
but this vintage box is  
surprisingly easy to scroll**

*By Rick and Karen Langabaugh*

This handcrafted music box is sure to become a cherished family heirloom. Even without the musical movement, the project makes a beautiful keepsake box. Try experimenting with different options—line the inside with silk or try a backing board with fineking; scroll just the top and leave the sides solid. You could even alter the pattern on the lid to include a monogram or special symbol. Customizing the box makes it a one-of-a-kind gift that's sure to please.

**Step 1: Prepare your blanks.** Cut all of the pieces to the dimensions listed in the materials list. Sand all of the pieces with progressively finer grits of sandpaper up to 220 grit.

**Step 2: Prepare the side pieces for stack cutting.** Stack the two blanks for the long sides and the two blanks for the short sides. Attach the blanks together to stack cut, using your method of choice (painter's tape, hot glue, double-sided tape, etc.).

**Step 3: Transfer the patterns to the top, bottom, and side stacks.** Use your method of choice (temporary bond spray adhesive, carbon paper, or graphite paper). Fold the patterns for the feet along the dotted line, and attach them to the blanks using temporary bond spray adhesive.

**Step 4: Drill blade entry holes for the interior cuts on the top, sides, and bottom.** Use the smallest drill bit that a #1 blade, or your blade of choice, will fit through. Drill the  $\frac{1}{8}$ "-diameter hole in the bottom for the music box key. Mark and drill the pilot holes for your hinge screws at this time as well.

**Step 5: Make the interior cuts on the sides and top.** Start in the center with the #1 reverse-tooth blade and work your way out. Cut the slots on the bottom for the side tabs. Try to keep these slots as square as possible so the side tabs fit in tightly.

**Step 6: Cut out the perimeter of the top, bottom, and sides.** Use a #5 reverse-tooth blade. It is possible to stack the top and bottom together, using double-sided tape or hot glue. This way, the scalloping around the edges will be exactly the same.

**Step 7: Cut out the box's feet.** You only need to cut out the rear view on the scroll saw since the top view is the exact dimensions listed in the materials list. Use a #5 skip-tooth blade. The piece is very thick  $1\frac{1}{4}$ " thick), so use caution, and let the saw cut at its own speed. If you try to cut too fast, the saw blade will bend, and you will get an angled cut.

**Step 8: Sand the pieces with 220-grit sandpaper to remove any burrs.** Apply your finish of choice. A good choice would be to dunk the pieces in Danish oil or boiled linseed oil. Dunk the pieces, bring them out, and suspend them so the oil will drain off.

**Step 9: Assemble the box according to the assembly diagram.** Run a bead of glue along the ends of the short sides, and nail the pieces together with small brads where indicated on the pattern. Glue the tabs on the long sides into the holes in the bottom. Make sure the screws for the hinges are not so long that they will penetrate through the wood of the top and side. Then, attach the hinges.

**Step 10: Glue the feet in place or the bottom where indicated on the pattern.** Use your wood glue of choice, and clamp the pieces overnight. Attach the music box movement to the bottom where indicated on the pattern. Follow the manufacturer's directions to install the music box movement.

## Materials & Tools

- Materials:**
- 2 pieces  $5\frac{1}{2}$ " x 8" x  $10\frac{1}{4}$ " wood of choice (top and bottom)
  - 2 pieces  $5\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x  $9\frac{1}{2}$ " wood of choice (sides)
  - 2 pieces  $5\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x  $5\frac{1}{4}$ " wood of choice (ends)
  - 4 pieces  $\frac{1}{8}$ " x  $1\frac{1}{4}$ " x 2" wood of choice (feet)
  - 2 hinges,  $1\frac{1}{4}$ " x  $3\frac{1}{4}$ " with corresponding screws
  - 8 small brads to tack sides together
  - Sandpaper, assorted grits up to 220 grit
  - Wood glue of choice
  - Finish of choice
  - Music box movement of choice

**Tools:**

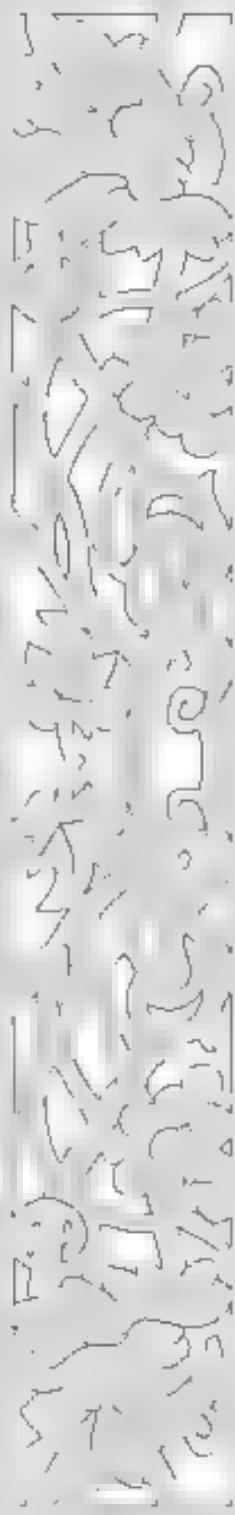
- #1 and #5 reverse-tooth blades or blades of choice
- #5 skip-tooth blades or blades of choice
- Drill
- Assorted small-diameter drill bits
- $\frac{1}{8}$ "-diameter drill bit
- Nail-in brad brads
- Clamps of choice

Photocopy at 100%

Attach ends with glue and  
bradawl nail

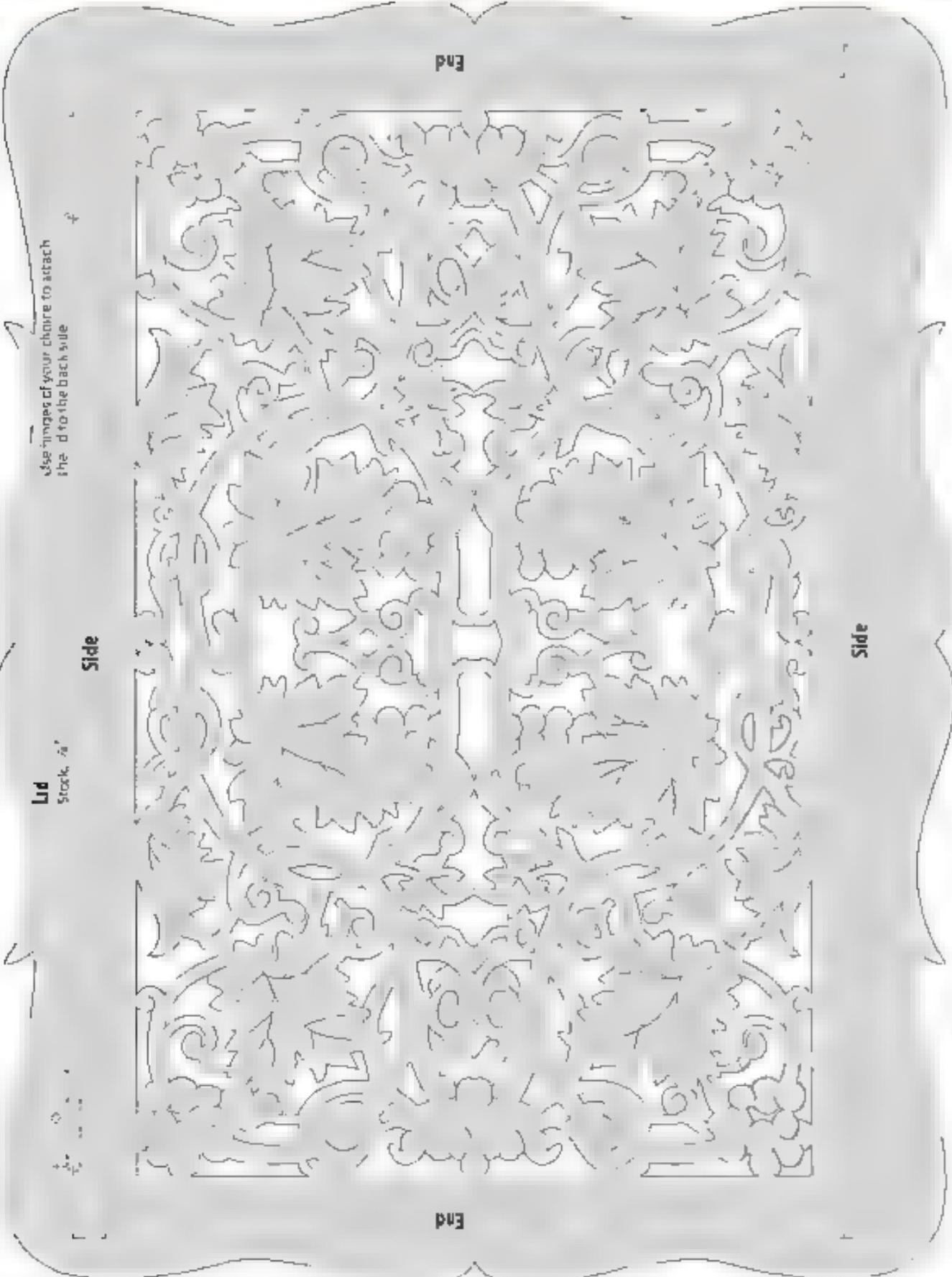
**Side**  
Stock 4", cut 2

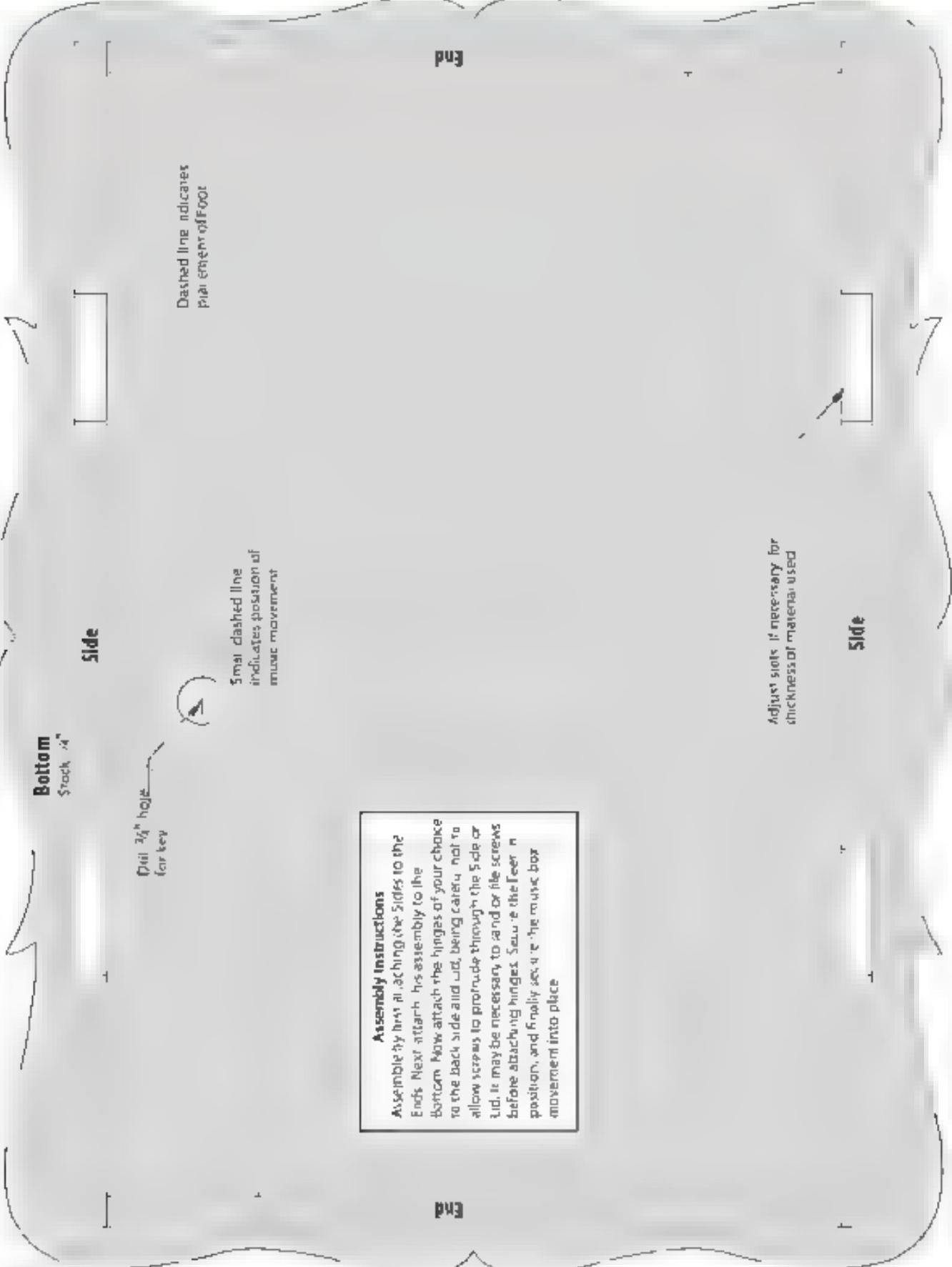
Use hinges or wood glue to attach  
the lid to the base board



**End**  
Stock 4" x 2" cut 2







# Good Luck Box

Recreate a classic design patterned after a Victorian box.

By Joe Prostek



Scroll this Victorian-influenced fretwork design as a great gift.

The idea for this project came from a box my son picked up at an antique store. They called it a Victorian document box. The top was hinged and the wear and tear from opening the box had cracked the back where the hinges were fastened. That is why I opted to make the top completely removable. I believe the original box was cut out of mahogany, but there were so many coats of finish on it, I'm not sure.

The original box was not lined, but I added a flocked interior. I did change the dimensions of the original box a little, but kept the spirit alive.

I used Baltic birch to make my box, but it looks good in black walnut with red flocking and black cherry with brown flocking. See what other combinations you can create.

**Step 1: Cut all the wood to size.** A table saw works best to give you straight sides and sharp corners.

**Step 2: Cut the box joints.** You can cut the joints on the table saw, with a router, or on the scroll saw. If cutting joints with the scroll saw, apply the pattern to corresponding pieces now; it is best to cut a little proud of the line on a scroll saw and adjust the fit by sanding. I used a scroll saw on the prototype and would highly recommend using a table saw or router. They make a much better joint.

**Step 3: Cut the scalloping on the top and bottom pieces.** Nail both pieces together in each corner for stack cutting. Attach the pattern to the top piece using temporary bond spray adhesive. Using the #7 blade, cut the scalloped outline on both so they will be uniform when finished. Take your time—the wood you

are cutting is both thick and hard. Designate one as the bottom and the other as the top.

**Step 4: Prepare to cut the fretwork sides.** Start by attaching the patterns to the wood with the spray adhesive. Then, drill blade entry holes for the fretwork on each panel.

**Step 5: Cut out the fretwork on the top and sides.** Start in the center and work your way outward on each piece. I cut it all using a #5 blade, but some people may prefer finer blades for the more fragile fretwork.

**Step 6: Finish sand the pieces using fine sandpaper.** If using a power sander, curl the edges of the paper up so they do not catch on the edges of the fragile fretwork.



**▲ Step 7: Glue up the box sides.**  
Make sure the joints are sanded flush. Then, apply glue to the joints, clamp, and allow them to dry.



**▲ Step 8: Spray the top keeper and inside panels of the box.** Use flat black paint on one side only  
Allow them to dry



**▲ Step 9: Glue the inside panels onto the box.** The color should show through the fretwork



**▲ Step 10: Glue the keeper to the top.** The color should again show through the fretwork. Allow everything to dry.

**Step 11: Spray everything with several coats of a clear finish of your choice.** Be sure to spray the inside to seal it before adding the flocking. Allow it to dry.



**▲ Step 12: Apply tape.** Tape around the edges of the box and along the edges of the keeper to contain the flocking.

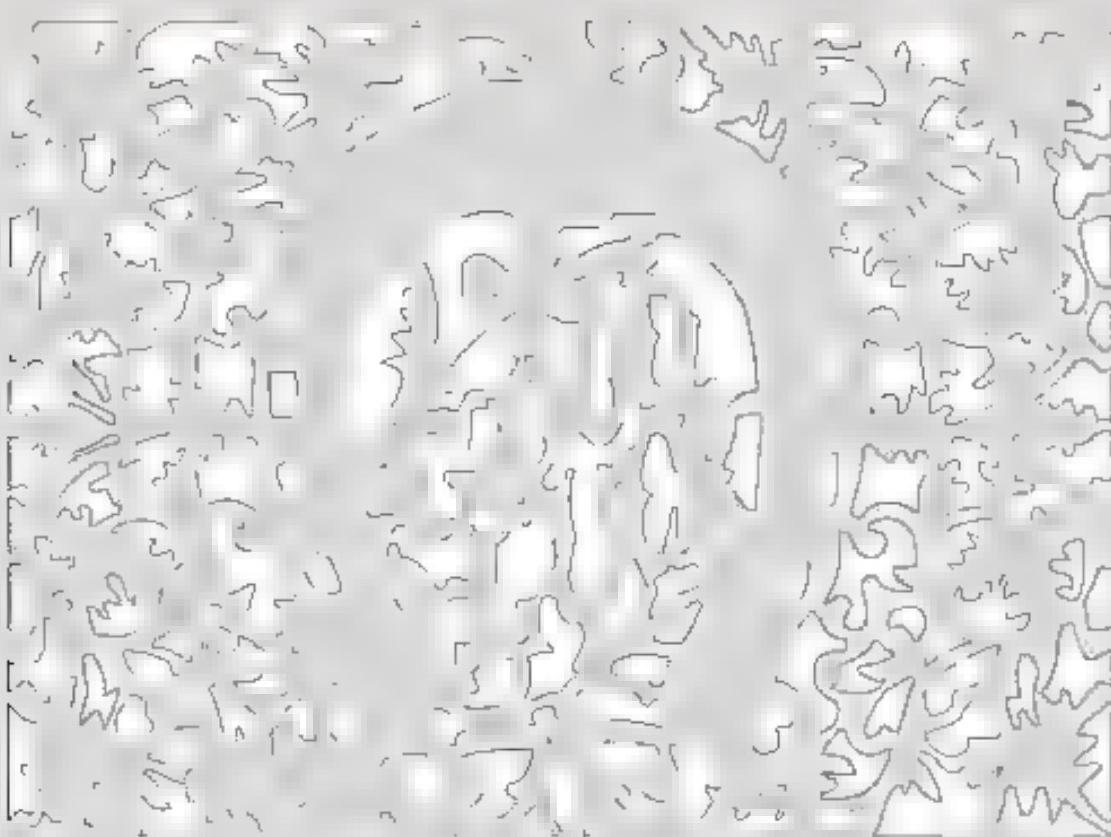


**▲ Step 13: Apply the undercoat adhesive for flocking.** Then, apply flocking. Do the top first. Then, move on to the box interior. Allow the box to dry for 24 hours.

**Step 14 Remove the masking tape and replace the cover.**



## Lid and Bottom



### Materials:

- 2 pieces  $\frac{3}{4}'' \times 3'' \times 27\frac{1}{2}''$   
(inside sides)
- 2 pieces  $\frac{3}{4}'' \times 3'' \times 9\frac{1}{2}''$   
(inside front and back)
- 2 pieces  $\frac{1}{2}'' \times 3\frac{1}{4}'' \times 8\frac{1}{8}''$  (sides)
- 2 pieces  $\frac{1}{2}'' \times 3\frac{1}{4}'' \times 70\frac{1}{8}''$   
(front and back)
- 2 blocks  $\frac{1}{2}'' \times 11'' \times 12''$   
(top & bottom)
- $\frac{1}{4}'' \times 7\frac{1}{8}'' \times 10\frac{1}{8}''$  (top keeper)
- Flat black spray paint

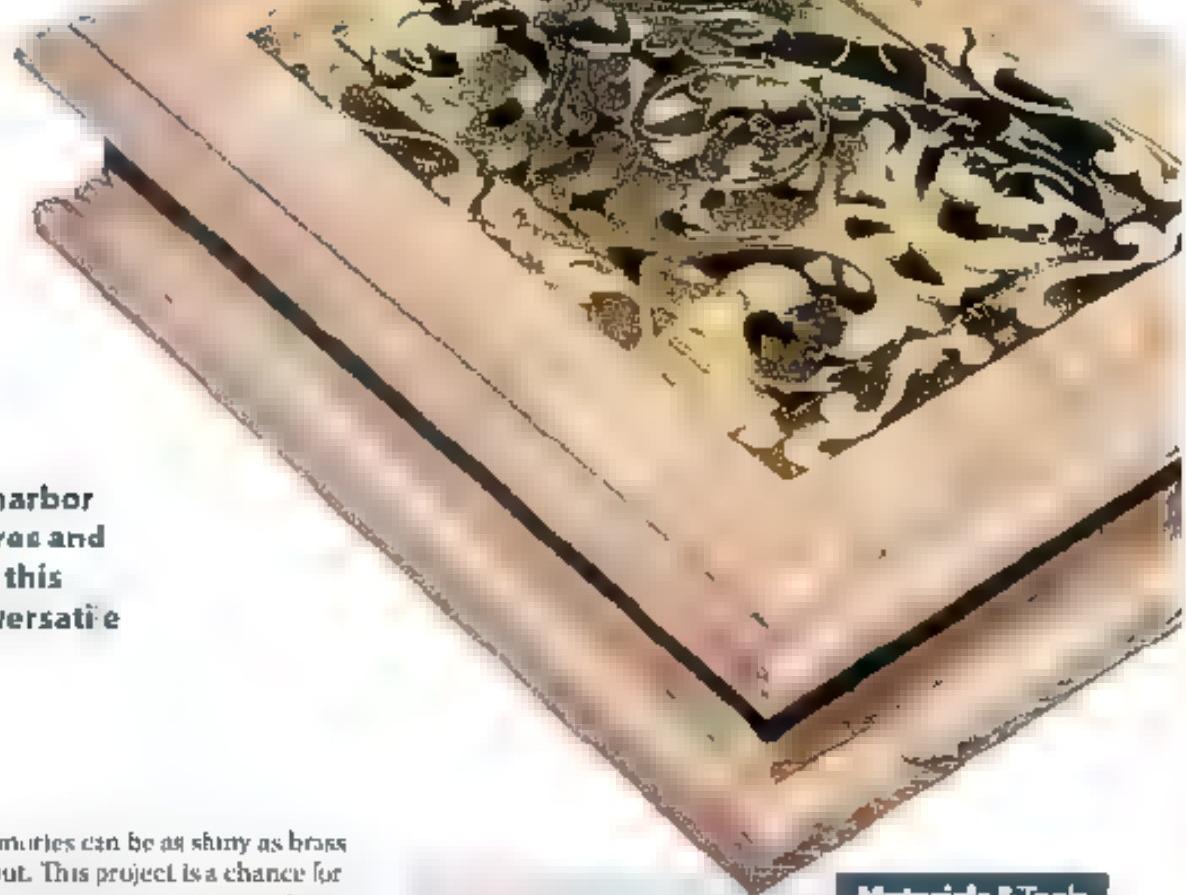
### Materials & Tools

- Clearspray finish of choice
- Black flocking kit
- Wood glue
- Masking tape or painter's tape

### Tools:

- Assorted clamps (spring & bar)
- #18 blade or blade of choice for delicate fretwork
- #63 drill bit

# Walnut and Brass Keepsake Box



Provide a safe harbor for your treasures and heirlooms with this attractive and versatile keepsake box

By Joan West

Our "collectible" memories can be as shiny as brass and as warm as walnut. This project is a chance for you to do more than just cut wood. Moreover, it enables you to experience the joy of working with brass to create a lasting tribute to those personal keepsakes you hold so dear.

The soft brass plate used in this project was ordered from Showcase Brass Company Inc., but a standard door kick plate purchased from a local hardware store will work nicely. Scrap and unpolished brass are also workable if you want to invest in a can of brass polish and a little elbow grease.

I designed and sized the initials specifically for this project to complement the unique decorative nature of the brass plate. Please feel free to use similar monogram styles or your choosing or whatever ornate stencils or computer fonts that strike your fancy.

## Materials:

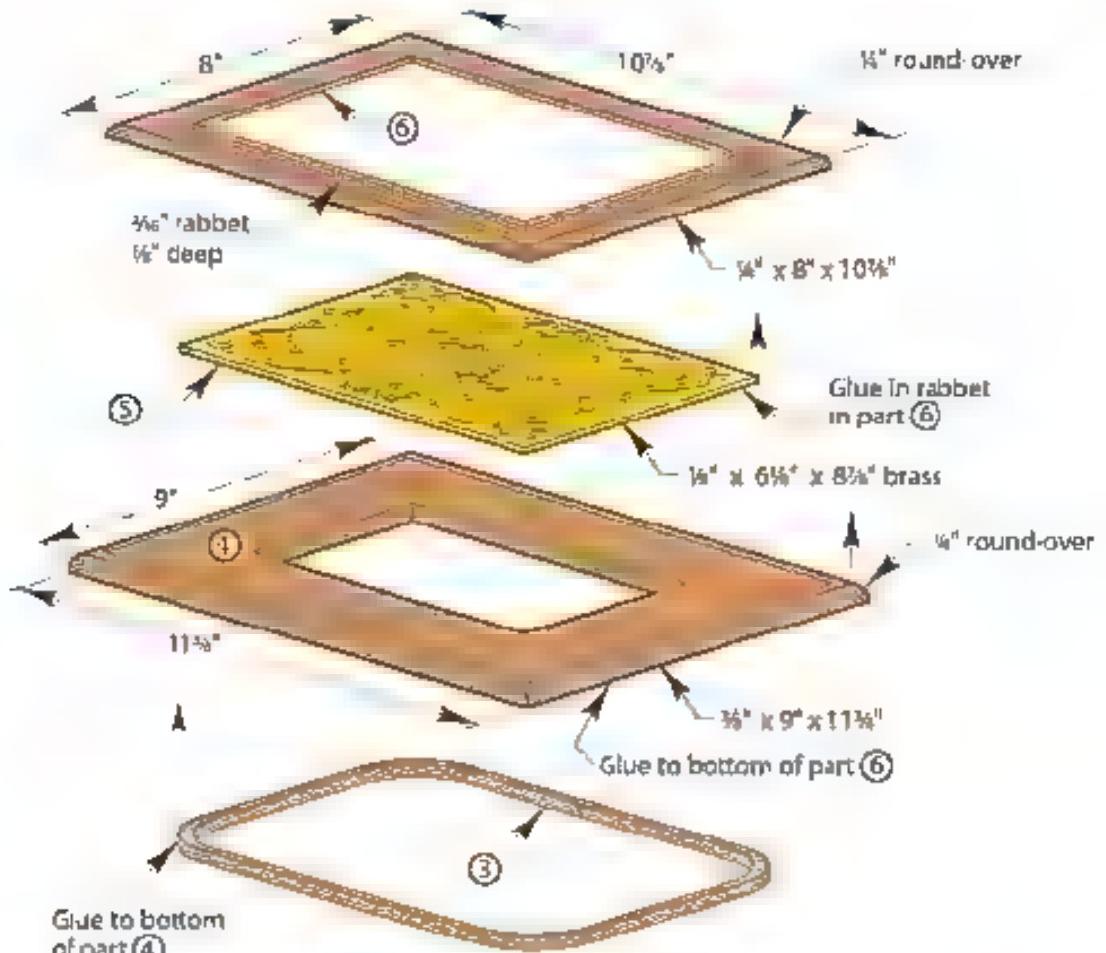
- $5\frac{1}{2}'' \times 12'' \times 10''$  walnut (base layer 1)
- $1\frac{1}{8}'' \times 11'' \times 9''$  walnut (box wall, layer 2)
- $1\frac{1}{8}'' \times 11'' \times 9''$  walnut (lid lip, layer 3)
- $\frac{3}{8}'' \times 12'' \times 10''$  walnut (main lid, layer 4)
- $1\frac{1}{8}'' \times 9'' \times 9''$  walnut (top lid, layer 5)
- $1\frac{1}{8}'' \times 14'' \times 8\frac{1}{4}'' \times 6\frac{1}{4}''$  scrap wood
- $8\frac{1}{2}'' \times 6\frac{1}{4}'' \times$  approximately 50 mils brass (layer 6)

## Tools:

- Dishpan
- Wood glue
- Clear packaging tape

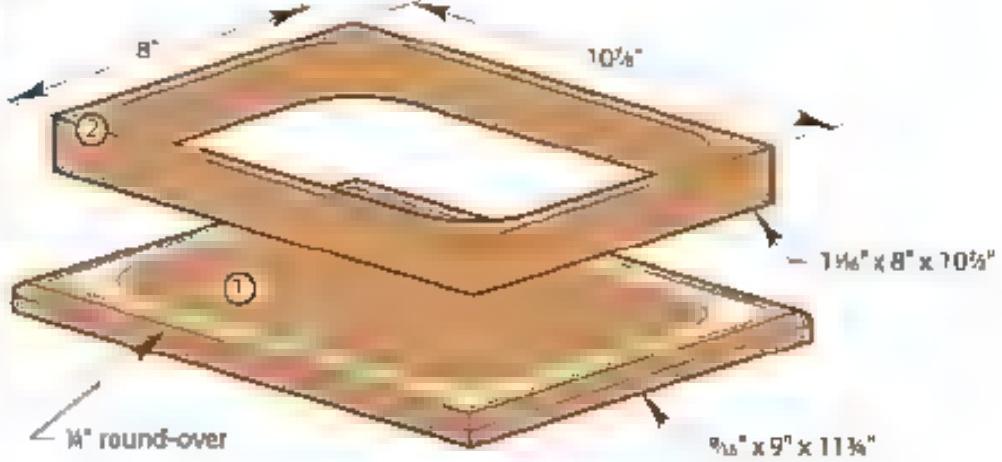
## Materials & Tools

- #7 blades for metal
- #7 precision ground tooth wood blades
- $1\frac{1}{8}''$  diameter drill bit
- Small chisel
- $1/8''$ -radius round-over router bit
- Silicon spray lubricant
- Caulk
- Temporary bond spray adhesive
- 600-grit sandpaper (for brass)  
100-, 150-, 220-grit sandpaper  
(for wood)
- Bar or C-clamps
- Metal or brass polish
- Finish sander
- Rotary polishing tool (optional)



## Order of Work at a Glance

1. Apply the patterns
2. Stack, wrap, scroll, sand, and polish the brass
3. Cut out the base, box wall, main lid, and top lid layers
4. Mark, position, and glue the lid and lid lip
5. Assemble and glue the main box pieces
6. Assemble and glue the main lid, brass pattern, and top lid
7. Finish the project with Danish oil
8. Fill the box with your favorite treasures and mementos!



## Scrolling the Brass Pattern and Monogram

**Step 1:** Place the brass on your piece of scrap wood. Then, wrap the stack together securely with one layer of clear packaging tape.



**▲ Step 2: Attach the pattern.** Spray the pattern with glue, or a suitable removable adhesive, and affix it to the brass plate.

**Step 3: Drill the  $\frac{1}{16}$ " blade entry holes.**



**▲ Step 4: Cut.** Lightly spray the blade with silicon for one to two seconds. Then, cut out the pattern.



**▲ Step 5: Sand the back of the brass.** Use 600 grit and sand until all burrs are removed.



**▲ Step 6: Smooth out cutting imperfections.** Use metal files.



**▲ Step 7: Polish the brass.** Fusing scrap or unpolished metal, shine the piece with a rotary polishing tool with a felt or muslin rag wheel.

## Making and Attaching the Lid Lip

**Step 1: Cut the pieces.** Apply the patterns and scroll all the walnut pieces. Sand as needed through 320 grit.

**Step 2: Rout the top edges.** Do layers 1, 3, and 5 with a  $\frac{1}{8}$ "-radius round-over bit.



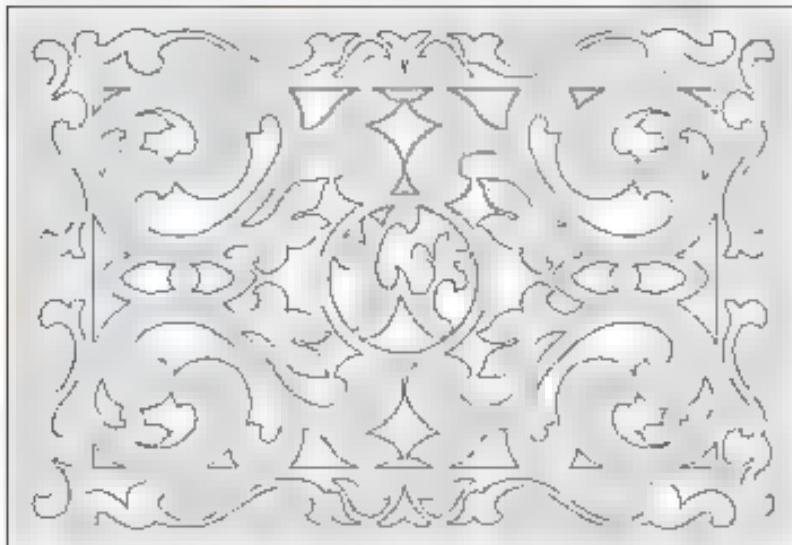
**▲ Step 3. Draw a pencil line around the top, inside edge of the box wall (layer 2). Then, draw a  $\frac{1}{8}$ " line inside this line, as shown.**

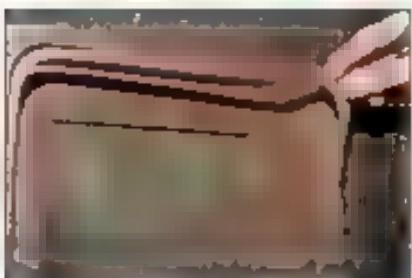
**Step 4: Scroll the lid lip.**

**Step 5: Gently round over both topside edges of the lid lip.** Do this by hand to soften the edges.

Photocopy at 200%

Part 5





**▲ Step 6: Test fit.** Turn the main lid upside down, position the box wall on the main lid, and clamp in place.

**Step 7: Glue.** Apply glue to the underside of lid lip and put it in place.

**Step 8: Remove the wall.** Without disturbing the lid lip placement, carefully remove the box wall.

**Step 9: Clamp the lid lip and allow it to dry.** Follow the glue manufacturer's recommendations.



## Final Box Assembly and Finishing

**▲ Step 1: Rout the bottom inside edge of top lid.** Layer 6 should be  $\frac{1}{8}$ " wide by  $\frac{1}{8}$ " deep, or at a dimension slightly more than the thickness of your brass piece.



**▲ Step 2: Square the rabbet.** Use a small wood chisel or suitable equivalent to square out the corners of the rabbet cut to accommodate the brass piece.



**▲ Step 3: Gently round over the top, inside edges of layers 5 and 3.** Do this by hand with 220-grit sandpaper.

**Step 4: Measure and mark the position of box wall (layer 2) on the base (layer 1).** When measuring, use long strips of masking tape along the entire lengths of each side; pencil marks are difficult to remove.



**▲ Step 5: Glue and clamp the box wall and base layers in place.**

**Step 6: Apply finish.** Finish the main lid only on the area directly beneath the border of the brass layer. If a finish is applied to the main lid's entire surface, layer 6 will not have a good bond.

**Step 7: Adhere the brass piece.** Using a very thin layer of caulk, affix the brass piece to layer 5 and let it dry.

**Step 8: Glue the top lid (layer 6).** Glue it to layer 4 with the brass plate between them and let it dry.

**Step 9: Apply the final finish.** Apply six to eight coats of Danish oil to the project and allow to it dry.

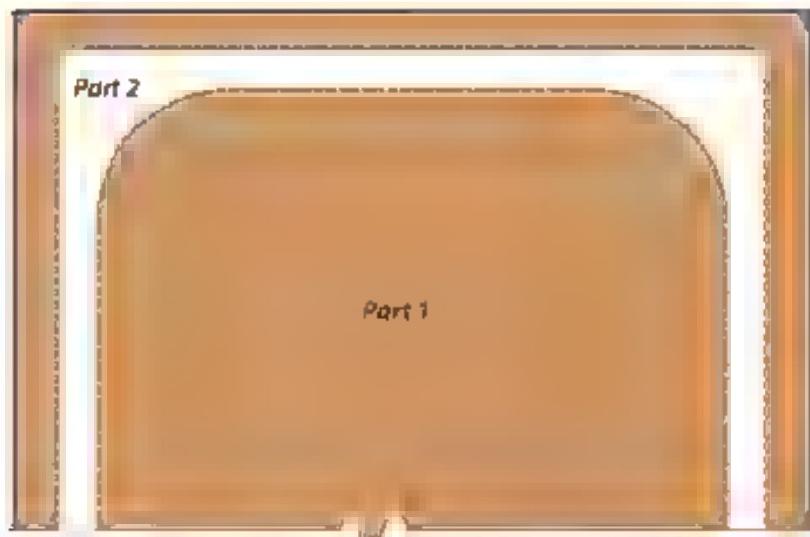
## Brass Scrolling Dos and Don'ts

Contrary to popular belief, brass neither is difficult to work with nor requires an expensive scroll saw to cut if acting as it soft brass. Actual brass content of items varies significantly, so be sure the brass you are using is soft brass.

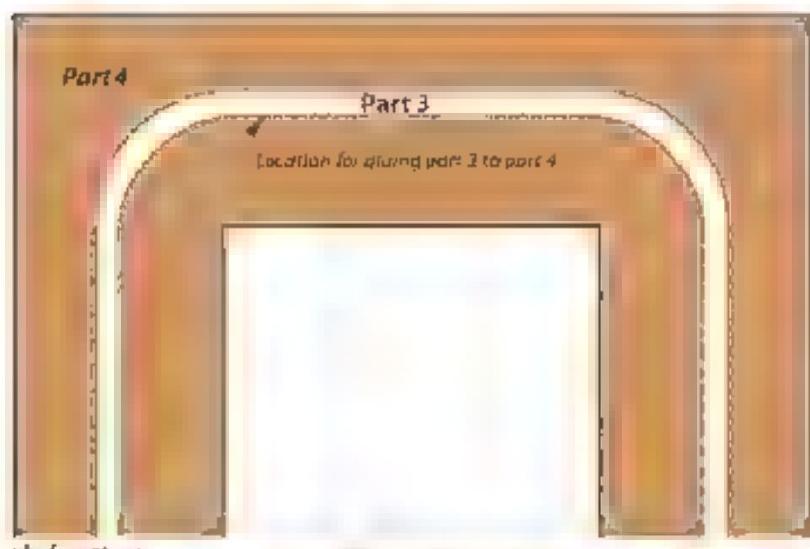
Older, single speed saws with shorter stroke lengths and pun-end-style blades may not work as smoothly with brass. The short stroke length allows the blade to overheat, and pun end blades are too wide to turn sharp corners. However, if your saw can throttle back to about 1,000 strokes per minute and accept standard blades, then this project should be a breeze.

The following are some Dos and Don'ts I learned from my experiences during the creation of this keepsake box.

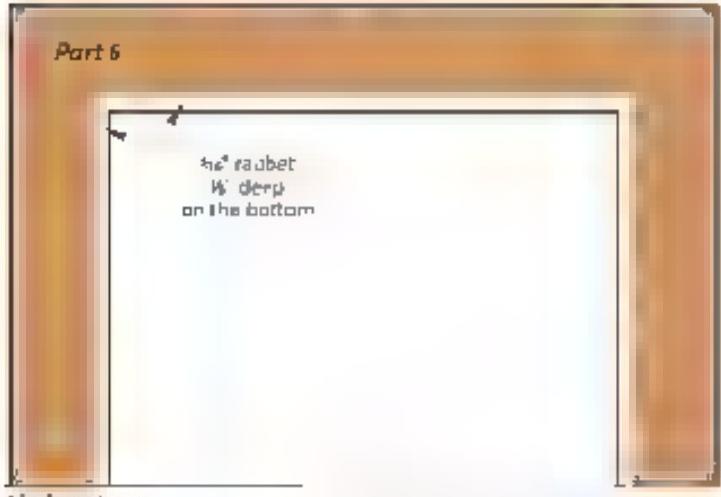
- Always wear eye protection when drilling, cutting, or sanding brass.
- Clear packing tape lubricates the blade, but make sure to tape over the entire cutting surface for greater stability.
- Wrap all of the edges of brass fit type so you don't cut your hands.
- You can double the life of your blade by creating a higher working surface to take advantage of the blade's uncut portion.
- Turn corners slowly to avoid catching the brass and lifting it off the table.
- Be aware that heat is generated quickly when cutting and sanding brass.
- Don't try to cut brass without a backer board. If you cut, the blade creates burns on the back, which impede the movement of the piece and will scratch your table.



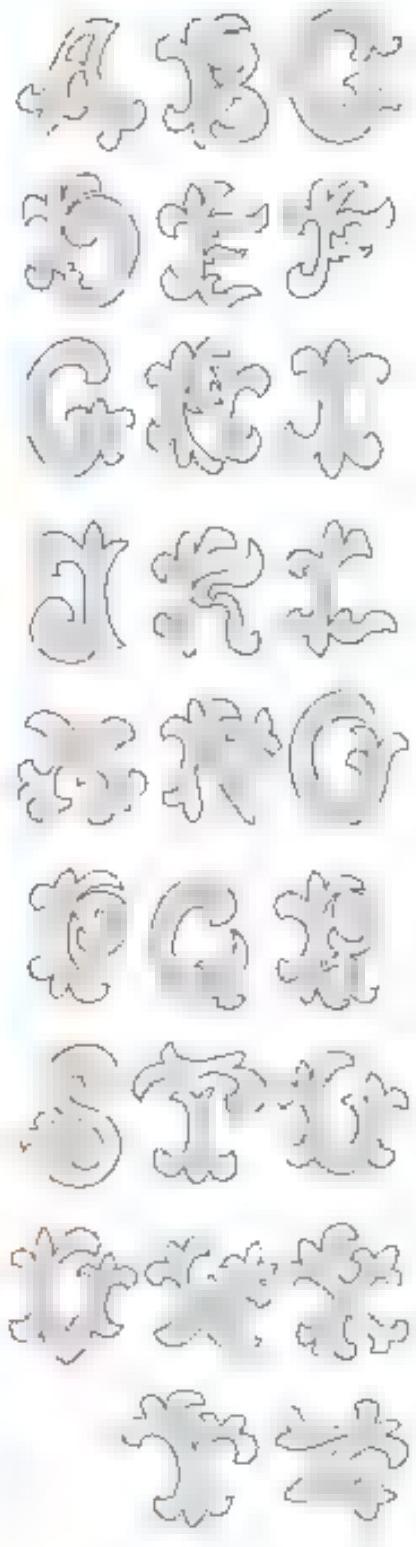
Half pattern



Half pattern



Half pattern



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# Holiday Card Holder



## Fretwork tote organizes cards and mail in style

By John A. Nelson  
Cut by Ben Fink

This Victorian-inspired basket is perfect for displaying Christmas cards. When the season is over, use the tote to collect mail, sewing supplies, remote controls, or a variety of other items.

You can adjust the design to suit your needs. It makes a beautiful decorative caddy for antique bottles or perfumes and lotions. Enlarge the pattern 130% to hold magazines. If you alter the dimensions of the pattern, you will need to manually adjust the tab slots. Be sure to account for variations in the thickness of your material.

Cut the pieces from your wood of choice. You can stock cut the end and side panels. Leave the slots slightly undersized. Sand or file the slots to accommodate the tabs for a perfect fit. The tabs and slots are coded by letter for easy assembly.

Apply your finish of choice. Use Danish oil. You can glue the tabs into the slots or create a tight joint with the sanding technique mentioned above. If the tabs are not glued in place, the basket can be disassembled for storage.

### Materials:

- 2 pieces 4" x 5 1/4" x 9 1/2" mimosa or wood of choice (end panels)

- 2 pieces 14" x 3 1/4" x 10 1/4" mimosa or wood of choice (side panels)

- 1" x 1" x 10 1/4" mimosa or wood of choice (bottom panel)

- 16" x 4" x 10 1/4" mimosa or wood of choice (handle)

- Wood glue (optional)

- Assorted grits of sandpaper up to 120 grit

### Materials & Tools

- Danish oil or finish of choice

### Tools:

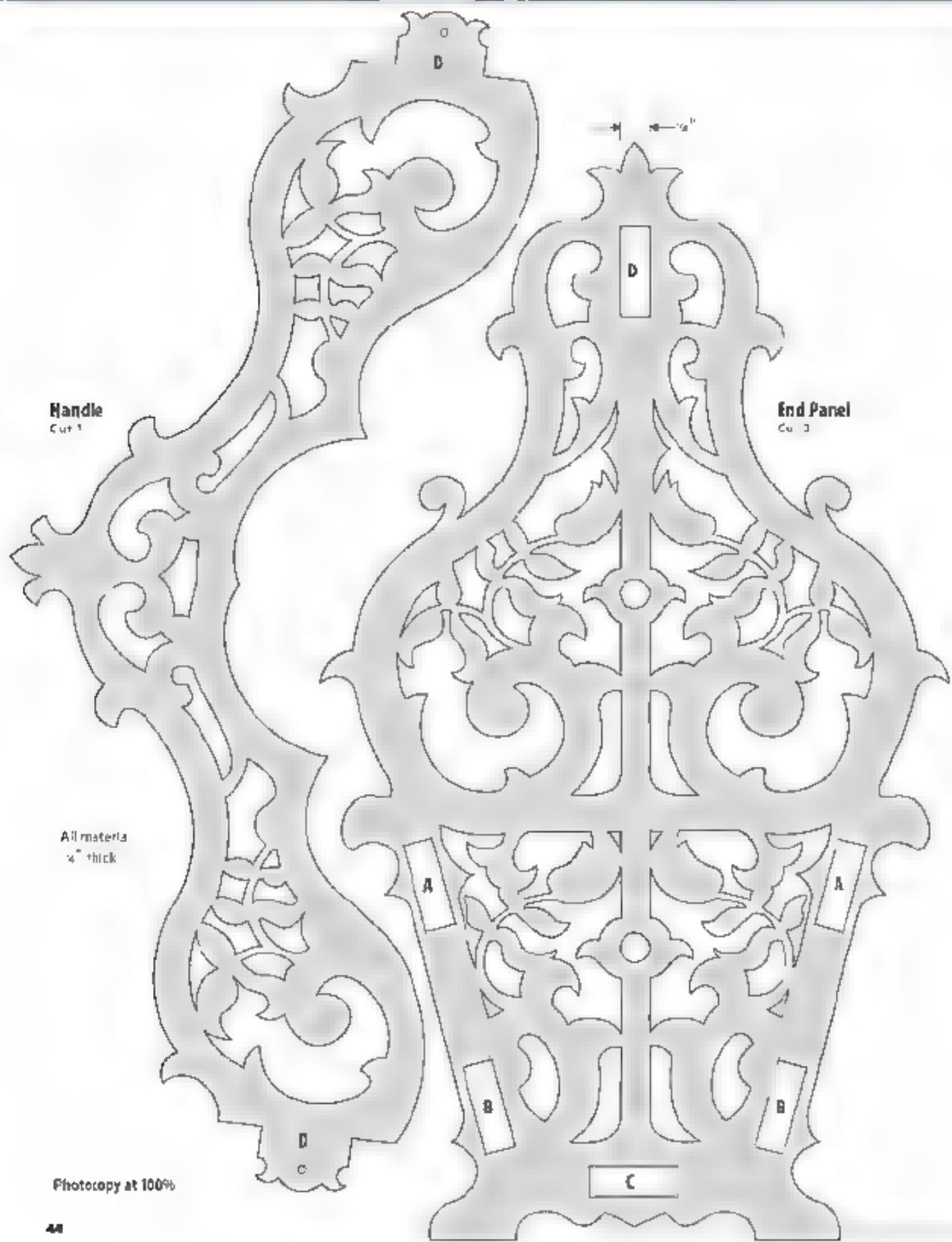
- 13 reverse-tooth blades or blades of choice

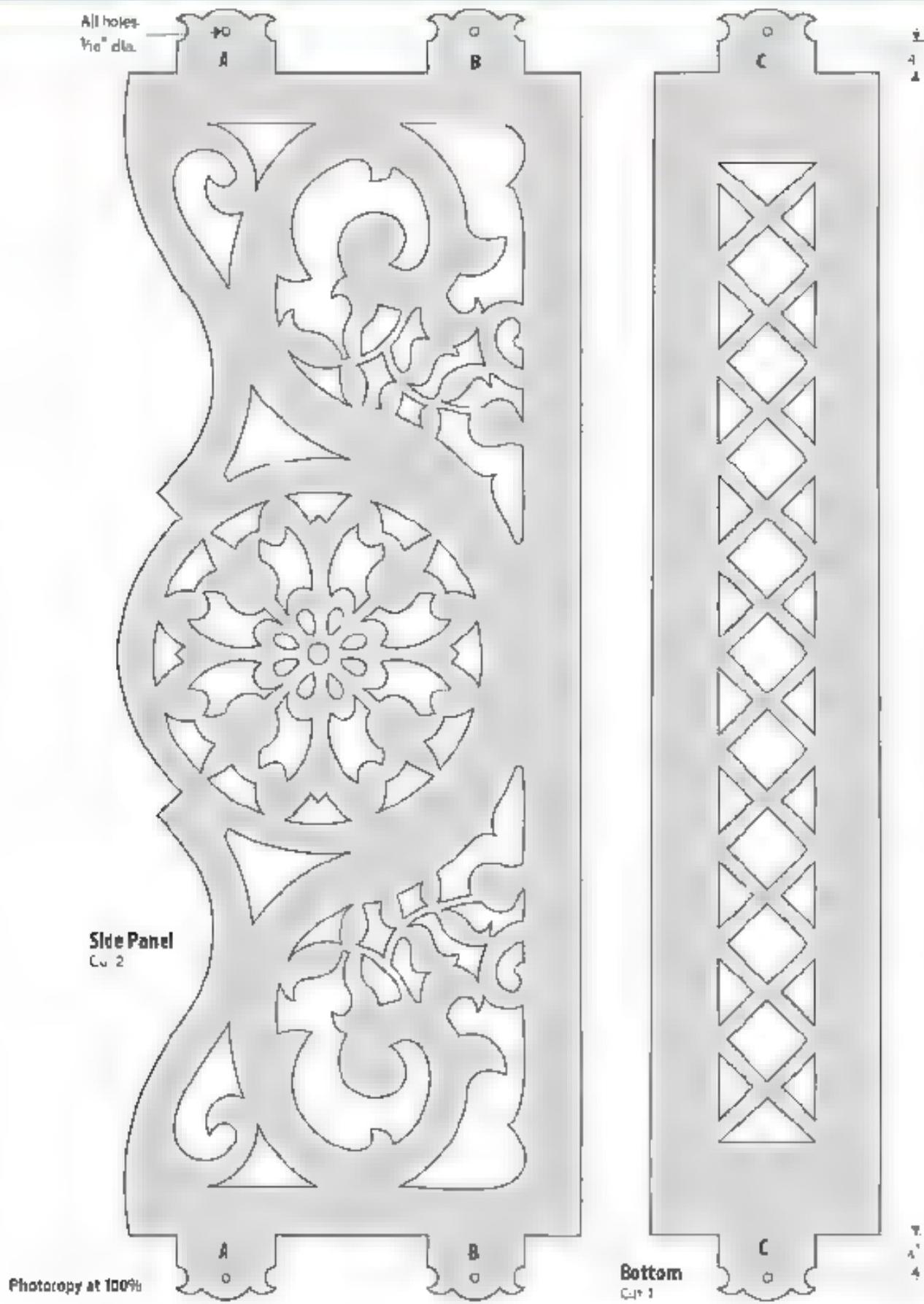
- Drill with 1/8" diameter drill bit

- Sander (optional)

- File

- Rags or brushes to apply finish (optional)





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# Segmentation and Intarsia Boxes

Intarsia is popular for creating hanging art, but it also makes a great embellishment in box making. Because segmentation is similar to intarsia, it too can be a great addition to any box project. Try the boxes featured in this section or you can even modify your favorite intarsia or segmentation pattern into a box using the tips and techniques included here.

Petal-Perfect Rose Box,  
by Robert Ardizzone, page 48.



# Petal-Perfect Rose Box

Basic technique turns any design into a custom keepsake box

By Robert Ardizzoni

The rose is a classic symbol of love and the flagship of the flower garden. I'm always a little saddened when the first cool days of autumn are on the horizon. I was looking for a way to bring summer inside all year long. This perennial blossom doesn't have the delightful scent of a real rose, but it does function as a keepsake box and makes a beautiful gift.

I first crafted the rose intarsia as a wall hanging, mounted on 1/8" thick birch plywood with a handmade frame, but my wife said it was too nice to hang on the wall. She asked me to make one to put on the coffee table and later suggested I make it into a box.



Preserve the romance of summer with this timeless rose intarsia.



1

**Transfer the center pattern to the wood** Make a photocopy of the pattern and shade the back with a soft lead pencil. Position the pattern over the blank, and trace along the lines of petals 1 to 9 with a red ballpoint pen, so you can see where you have already traced.

### Cutting and Shaping the Rose

**2**

**Cut and shape petals 1 to 9.** Cut the section as one piece with a #12 blade. Then, separate the petals with a #2 blade. Shape the petals with a sander, using the arrows on the pattern as a guide. Work toward the center. Use 350-grit sandpaper to remove any scratches.

**3**

**Glue the center section together.** Apply masking tape to the edges. Then, spray the face of the petals with a coat of lacquer. The lacquer prevents glue from adhering to the face of the petals. Remove the masking tape, apply glue to the edges, and glue the petals together.

**4**

**Cut the other petals.** Start with petal 10. Trace the pattern onto your stock. Then, align the center section and trace the adjoining line with a red pen. Cut the piece with a #12 blade; cut outside the red line and sand up to it for a perfect fit. Use the same process to cut the other pieces.

**5**

**Shape the remaining petals and leaves.** Reduce the thickness using the chart as a guide (see page 51). Shape the pieces, using the arrows as a guide. Tape and lacquer the pieces. When dry, remove the tape and glue petals 10 to 14 to the center section. Set the other pieces aside.

### Assembling the Rose

**6**

**Create the lid backing board.** Place the center assembly on a 1/4" thick Baltic birch plywood and position the remaining petals around it. Trace the rose with a red pen. Make a black line 1/8" in from the red line. Drill a blade entry hole between the lines and cut along the black line.

**7**

**Glue the petals to the backing board.** Align all of the pieces on the backing board, and then remove the loose petals. Trace the position of the center assembly, and then glue it in place. Allow the glue to set. Then, glue petals 15 through 18 in place. Allow the glue to dry overnight.



**9** Create the box template. Position the lid assembly back in the hole in the plywood. Place the stem and leaves in position. Trace around the entire piece. Place a pen inside a  $\frac{1}{8}$ "-diameter washer for consistent spacing. Cut the box template and smooth the outside perimeter only.



**10** Cut the first box layer. Place the template on the  $\frac{1}{4}$ "-thick walnut and trace the inside and outside. Cut  $\frac{1}{8}$ " outside the perimeter and  $\frac{1}{16}$ " inside the lid area. Sand to the lines. I use a spindle sander. Check the fit of the lid assembly and sand the box to fit. Allow extra space for the flocking paint.



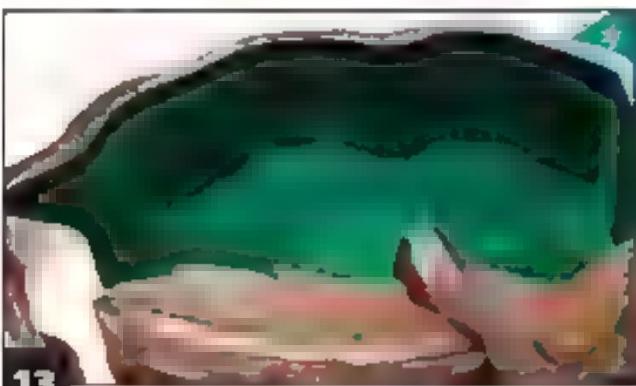
**11** Cut the second box layer. Remove any burns from the first layer with 220-grit sandpaper. Do not round over the edge. Trace around the top layer for the second layer. Use the same techniques from Step 9 to cut and shape the second layer. Then, glue and clamp the two layers together.



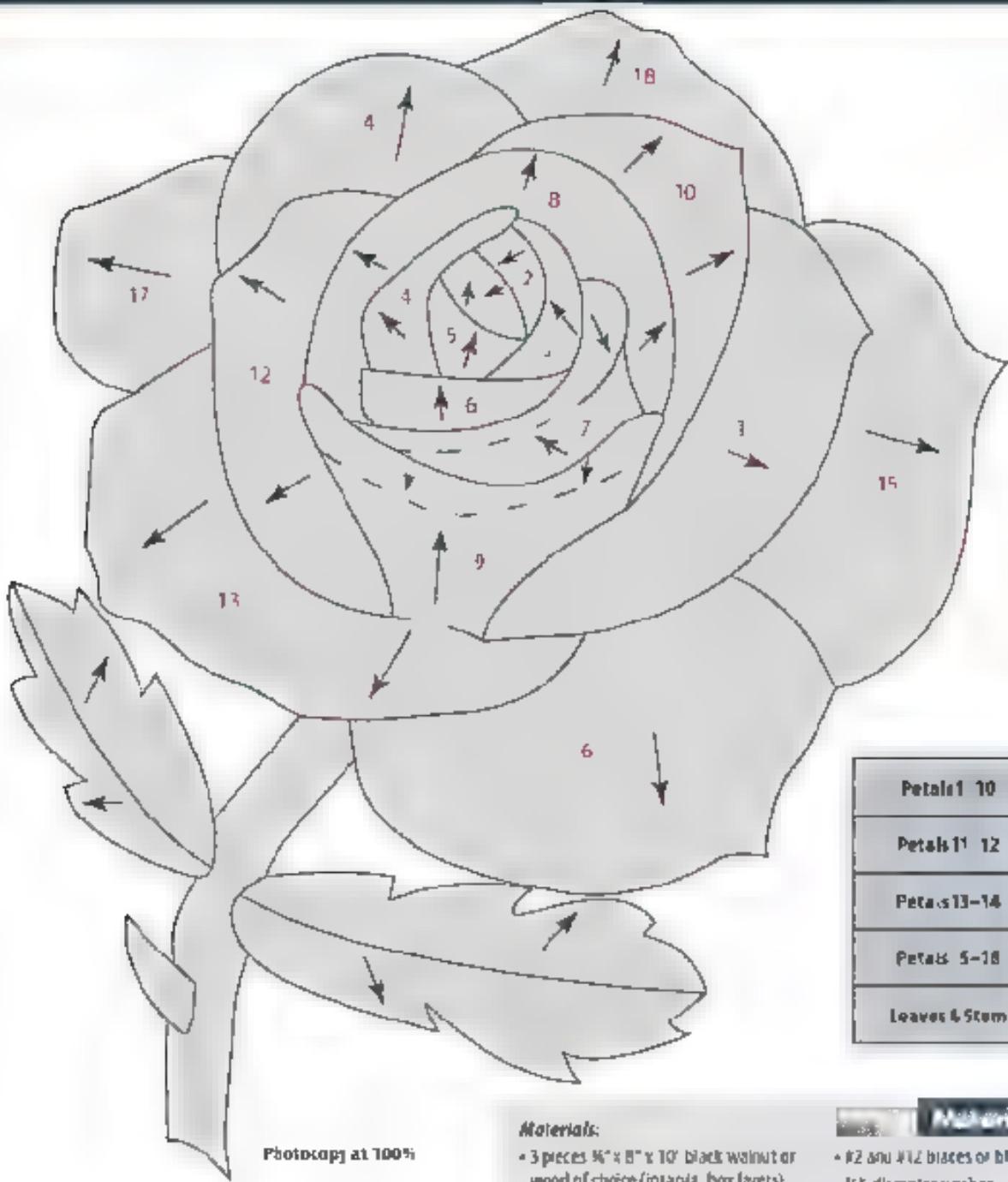
**12** Cut the bottom. Smooth the inside of the box with a router and a flush-trim bit. Then, sand the inside with a spindle sander. Trace the perimeter of the sides onto  $\frac{1}{8}$ "-thick walnut. Cut along the line; then, glue and clamp the bottom to the sides. Smooth and sand the perimeter.



**13** Apply the finish. Place the stem and leaves on the box sides, but do not glue them down. Spray several coats of lacquer over the entire piece. When the lacquer is dry, glue the stem and leaves in place where there is no obvious lacquer. Replace the lid and apply another coat of lacquer.



**14** Flock the inside of the box. Paint the edge of the lid bottom and  $\frac{1}{16}$ " down the insides of the box with flocking paint and dry overnight. Mask off the top  $\frac{1}{4}$ " of the box. Follow the manufacturer's instructions to flock the inside of the box and the lid burlap. Attach felt feet to the bottom of the box.



Photocopy at 100%



#### Materials:

- 3 pieces ¾" x 8" x 10" black walnut or wood of choice (inlay, box layers)
- ½" x 8" x 10" black walnut or matching wood of choice (box bottom)
- ¾" x 8" x 10" Baltic birch plywood (box lid facing, box layer template)
- Wood glue or glue of choice
- Sandpaper: 220 and 350 grits
- Spray lacquer
- Fletching kit (available from most woodworking suppliers)
- Masking tape
- Feit pads

#### Materials & Tools

- #2 and #12 blades or blades of choice
- ¼"-diameter washer
- Router with flush-trim bit
- Sander of choice (I use a spindle sander, a belt sander, and a rotary power carver)
- Drill with ½" and ¼"-diameter bits
- Assorted clamps
- #2 pencil
- Red and black ballpoint pens



# Eagle Keepsake Box

Straightforward project is ideal for beginners

By Paul Meisel

This box makes an attractive place for valuable keepsakes. The eagle decorating the top can be made as segmentation or intarsia. Both the box and eagle are easy to cut and assemble, so even beginners can successfully complete the project. Select a combination of light and dark wood for the eagle applique, or simplify the design by cutting all of the parts from  $\frac{1}{4}$ "-thick cherry and staining the dark segments.

## Building the Box

**Step 1: Cut the box sides.** Use a table saw to rip the  $\frac{1}{2}$ " thick stock to  $3\frac{1}{4}$ "-wide. This will be used for the box front, back, and sides.

**Step 2: Cut the mitered corners.** Set the miter saw to cut at a 45° angle and cut the front and back to  $10\frac{1}{4}$ " long. Cut the sides to 5" long. Dry fit the four pieces together and check the fit.

**Step 3: Assemble the box sides.** Glue and clamp the front, back, and side pieces together. Use a strap clamp. Use a square to check that the assembly is square and allow the glue to dry.

**Step 4: Separate the lid from the sides.** Set the blade height on your table saw to  $\frac{1}{4}$ ". Set the rip fence  $\frac{1}{4}$ " from the blade and cut all around

the glue-up to separate the lid frame from the box frame.

**Step 5: Drill pilot holes for the hinges and lid support screws.** Drill the  $\frac{1}{8}$ "-diameter holes now because they will be difficult to drill after the top and bottom are attached.

**Step 6: Cut the top and bottom.** You may need to edge glue two  $\frac{1}{4}$ " x 3" x 24" boards together to get the required width. Cut the pieces to  $5\frac{1}{4}$ " x 11". Sand the edges until smooth and slightly rounded.

**Step 7: Assemble the box.** Center the box frame on the bottom stock and center the lid frame on the top stock. Attach the top and bottom with wood glue. Make sure the lid and sides are both centered correctly and glue up with each other. Allow the glue to dry. Then, install the hinges and lid support.

## The Eagle Embellishment

**Step 8: Transfer the pattern to your stock.** For the intarsia version, select the direction of grain you prefer for each piece. Arrange the grain of the walnut parts to follow the spread of the wings, simulating feathers. The grain on the remaining parts was left in a vertical direction.

**Step 9: Cut the parts.** Use a #2 reverse-skip-tooth blade. Round over the edges as desired. Arrange the pieces of the eagle so they are centered on the top of the box and glue them in place.



## Finish the Box

**Step 10: Apply the finish.** Remove the hinges and lid support and brush on a coat of sanding sealer. When the sealer is dry, sand lightly with 220-grit sandpaper. Remove any dust, and then apply a coat of polyurethane varnish.

**Step 11: Line the box.** Use scissors to cut the pressure-sensitive felt to size. Remove the backing paper and press the felt into place. Replace the hinges and lid support.

 FELT FEET

*Cut four 1" diameter round circles from the left over scraps of felt, and apply one to each corner of the bottom of the finished project.*

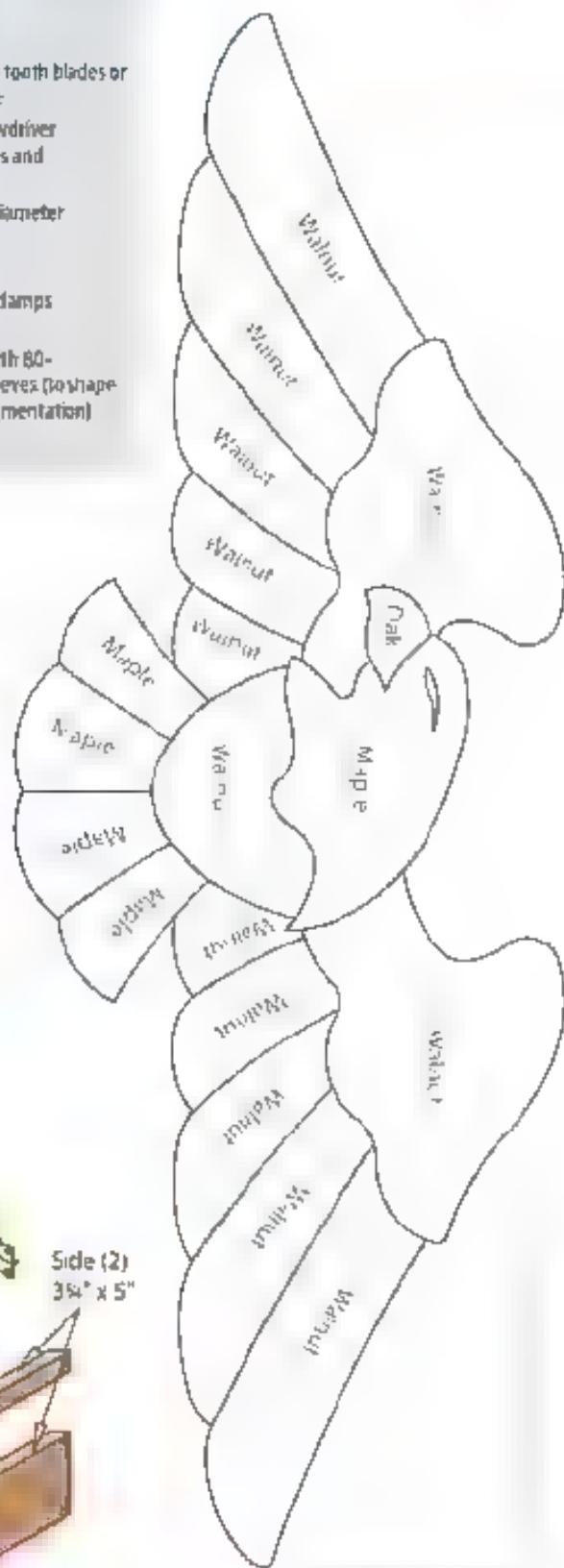
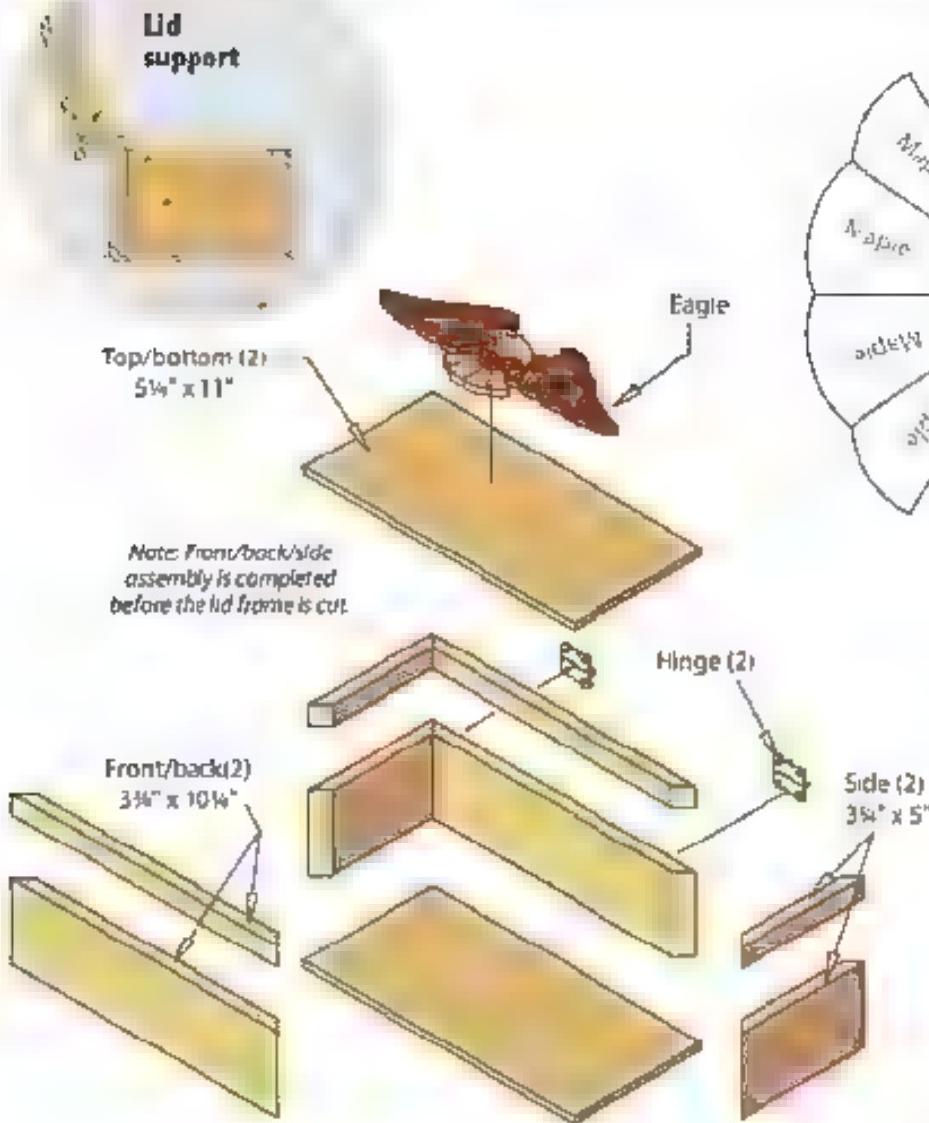
Matzoh +

- $1\frac{1}{2}'' \times 3\frac{1}{4}'' \times 36'$  oak (sides)
  - 2 pieces  $\frac{1}{2}'' \times 5'' \times 24'$  oak
  - 1 piece  $\frac{1}{2}'' \times 6'' \times 24'$  oak  
(lid and bottom)
  - $1\frac{1}{2}'' \times 3\frac{1}{4}'' \times 9\frac{1}{4}''$  wood of  
choice (eagle)
  - Brass hinges & lid support kit  
with screws
  - 2 each  $9'' \times 12''$  pressure-  
sensitive green felt
  - Sanding sealer
  - Assorted stains of choice  
(optional)
  - Polyurethane varnish
  - Sandpaper, 220 grit
  - Wood glue

Materials & Tools

Tools

- Table saw
  - Mitre saw
  - #2 reverse-skip-tooth blades or blades of choice
  - #0 Phillips screwdriver (to install blades and lid support)
  - Drill with  $\frac{1}{4}$ -in.-diameter drill bit
  - Scissors
  - Strap clamp or clamps of choice
  - Drum sander with 80- and 120-grit sleeves (to shape intarsia and segmentation)
  - Paintbrushes



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# Fantasy Keepsake Boxes

Segmentation techniques and brilliant colors breathe life into these boxes!

By Sue Chrestensen

Based on designs

By Lora S. Irish



## A Note on Designs

I have had the pleasure of making these two projects from Lora S. Irish's magnificent art. The dragon box is from the Great Book of Dragon Patterns, the fairy is a compilation of two patterns from the Great Book of Fairy Patterns. The manner in which the boxes were made is the result of standard segmentation techniques and my imagination.

The work would be considered a derivative of Lora's copyrighted art. She maintains that copyright and these patterns are presented with her consent.



Popular gift and sale items, these embellished boxes look great whether you choose to highlight the natural wood or personalize them with color.



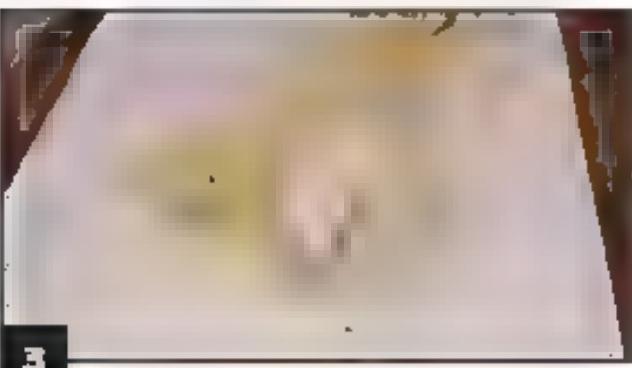
Segmentation and stack cutting techniques make these boxes much easier to create than they look. They are a great way to keep small items organized and make a perfect gift for teens. They are also easy to customize by changing the colors, raising and lowering different pieces, or by using traditional intarsia techniques to take advantage of interesting grains or wood colors.

Having never met one, I imagine dragons to be colorful creatures. It was helpful in doing this project to color some extra copies of the patterns before beginning to stain this project—I looked at various options and color combinations, and then made my choice. Your dragon might be a totally different color. Just have fun with whatever decision you make—it's your imagination and vision.

I've also included a pattern for a fairy box. It uses almost the same techniques.



**1** **Prepare your blanks.** Make sure the boards are smooth and flat. Attach the pattern using your method of choice. I put blue painter's tape on the wood and apply temporary bond spray adhesive to the pattern. Then, I press the pattern firmly onto the wood. Remove the extra wood from around the pattern.



**3** **Cut out the pieces.** Write the number of each piece on the bottom as you cut it. Then, place it in the corresponding location on the master pattern. Transfer the lines onto the flowery part under the dragon's wings by pressing hard with a pen to leave an indentation behind. Make more indentations into the wood, using your pattern as a guide. Remove the tape and patterns on all the pieces except the wings, head, and the feathers. The longer the tape remains on the wood, the more difficult it is to remove.



**5** **Prepare the backer board, box sides, and the box bottom for stack cutting.** Cover both sides of one of the  $\frac{1}{8}$ -inch-thick pieces of Baltic birch plywood with blue painter's tape. Cover one side of the pine board and the other  $\frac{1}{8}$ -inch-thick piece of plywood. Apply spray adhesive to the tape, and press the pieces together making sure the pine is on top and the plywood with tape on both sides is in the middle. If you did not trace your pattern onto the pine, tape the other side and apply the pattern, using spray adhesive.



**2** **Divide the piece into two segments.** Find the line that will allow you to cut the project into manageable sections. Keep a small piece of fine sandpaper handy to remove any burrs or jagged edges left by the blade.



**4** **Create a pattern for the remaining pieces.** Place the pieces tightly together on the master pattern. You will notice that the cut dragon is slightly smaller than the original pattern. This is because of the saw kerf. Secure all of the pieces together with masking tape, move them to the pinebox sides piece, and trace around the piece. Alternatively, you can trace the pieces onto a piece of paper and attach that paper to the box sides piece using spray adhesive, or even use a copy of the original pattern and cut inside the lines.



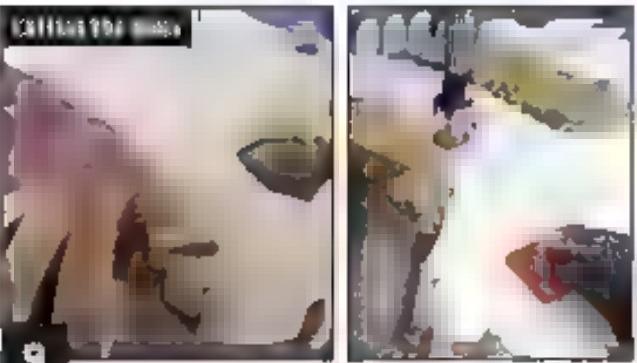
**6** **Cut out the backer board, box bottom, and the box sides.** Use the same techniques explained above to cut out ONLY the outline of the dragon on all three pieces at the same time. As soon as you finish cutting these pieces, separate them. Once you have found it gets more difficult to separate pieces when they are left attached.



**7** Cut the details in the face. Set the backer board and the box sides aside and go back to the segments cut in Step 3. Drill blade entry holes between the dragon's teeth and at the back of its mouth. Cut out and remove the wood from the area under the dragon's eye. This fret-style removal of wood in combination with a segmented plier adds to the overall look of this project. The eye is composed of three very small pieces—cut it out carefully.



**8** Add details to the leaves over the dragon's head. Details can be added to the project in a variety of ways. A hand-held rotary tool has many possibilities and accessories that can be used to detail a project—from the details on a feather to the lines on a leaf. Again, it is in the eye of the person making the project. Creativity and giving yourself permission to experiment is key.



**9** Prepare the box sides. Drill a  $\frac{1}{8}$ " hole for the dowel as shown on the pattern. Draw a line approximately  $\frac{1}{8}$ " in from the outside of the dragon following its contours on the  $\frac{1}{2}$ " thick pine for the box sides. Keep in mind that really narrow areas aren't usable. This is the area to be cut out and removed forming the "box" area. Drill a blade entry hole wherever it is convenient. Cut out the inside of the box



**10** Ensure that all the pieces match. Tape the segmented pieces together and place them on the cut backer board. Center the pieces and match them up to the edges. Compare this to the box side and box bottom. Sand any areas that don't match up smoothly.



**11** Sand, shim, and shape the pieces. Start by sanding the edges of all the pieces to give the project a finished look. You can also use a belt sander to reduce the thicknesses of pieces to add depth and dimension. You want the pieces to flow together but still be distinct. If you want some pieces to be higher than others, add a small shim below them. You can also use a rotary carving tool to add texture, (such as adding folds to the fairy's dress in the alternate pattern).



**12** Prepare the dragon for staining. Sand all the pieces with progressively finer sandpaper up to 220 grit. The end grain often comes out darker when stained the same color. One way to help even the color out is to sand the end grain to a higher grit—sand the end grain to 400 or 600 grit.



13

**Glue the box bottom to the box sides.** Apply a thin coat of wood glue to the bottom of the box sides, place the box bottom in place, and clamp overnight.



15

**Glue the segmentation pieces down onto the backer board.** Start by applying a light coat of glue to one piece. Clamp this piece in place until it's dry. Then, work your way out from here. As you glue more pieces around the first piece, add weights or clamp them in place to prevent them from moving. Drill a hole halfway through the segmented lid and its backer board the same size as your dowel. Cut the dowel to fit, letting the top of the bottle dry. Glue the dowel into the bottom box. When finished, sign and date your work.

#### Materials

- 2 pieces 1" x 10" x 2" pine (segmentation and box sides)
- 2 pieces 1/4" x 10" x 12" Baltic birch plywood (backer board and box bottom)
- Temporary bond spray adhesive
- Blue painter's tape
- Fine-point marker
- Wood glue of choice (I use Eliebond UU)
- Sandpaper, 120, 150, 220, and 400 to 600 grits
- Brown paper bag (to sand down some finishes)
- Varnish

#### Materials & Tools

- 1/8"-diameter x 2" section of dowel
- Stains or paints of choice

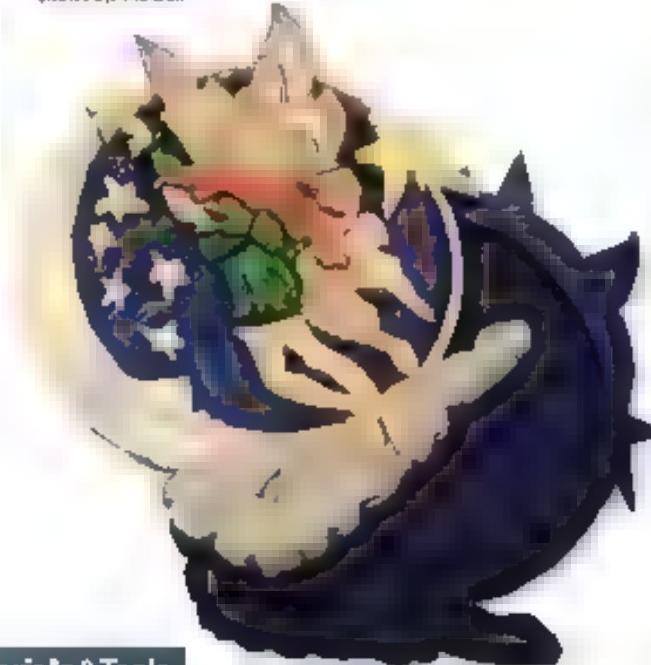
#### Tools:

- #2, #5, and #7 reverse-tooth blades or blades of choice
- Belt sander (optional for sanding down segmentation pieces)
- Rotary tool (optional for sanding or shaping segmentation pieces)
- Drill or drill press
- 1/8"-diameter drill bit
- 1/8"-diameter drill bit



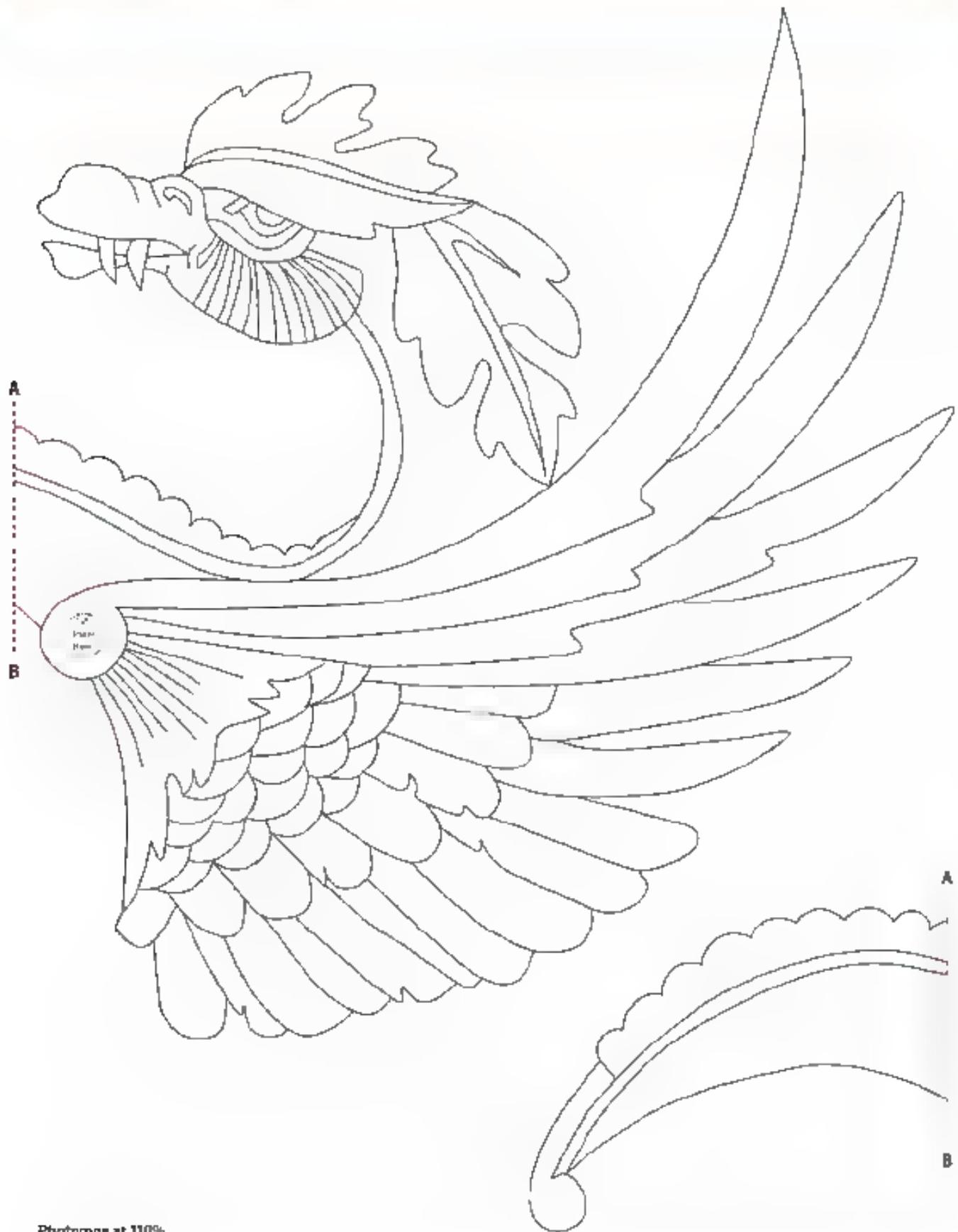
14

**Add color to your dragon.** You can use oil- or water-based stains, leather dyes, food coloring, and even paint. Combining and experimenting with color is half the fun. It is also important to know that sanding away color, leaving just a hint that it had been there, can add a great highlight to an area. Just be sure to let the stain dry, and lightly sand between coats of varnish. Also, stain both of the backer boards and the box sides. A piece of brown paper bag can be used as a sandpaper alternative and is the equivalent of 1500-grit sandpaper. It works wonderfully on acrylic paint. Use your finish of choice on the box.



#### TIP: USING A THIN COAT OF GLUE

Because the segmentation pieces are not really structural, or very light, this coat of glue will hold the piece firmly. Using a light coat of glue also means that the piece will be less likely to move.



Photocopy at 110%



Photocopy at 110%

# Hanging Backpack Box

**Segmented sections and rich colors create a realistic look**

By Sue Chrestensen

## Materials & Tools

### Materials:

- 1" x 12" x 36" pine  
(segmented lid and box sides)
- ¾" x 12" x 24" Baltic birch plywood  
(backer board and box bottom)
- ½" x 2" x 24" wood of choice  
(hanging board for pegs)
- 3 wooden shaker pegs,  
½" diameter x 2"
- ¼" diameter dowel
- Latch hook
- Temporary bond spray adhesive
- Blue painter's tape
- Marker (to number the pieces)
- Wood glue
- Sandpaper, 120, 150, & 220 grits
- Stain or dye to color the wood  
(optional)
- Assorted paints
- Varnish (optional)

### Tools:

- #5 reverse-tooth blades or blades of choice
- ½" and 1½" -diameter drill bit
- Belt sander (optional to chip down stock)
- Rotary tool and assorted carving burrs (optional to texture the segmentation)
- Drill or drill press

This cool backpack is an easy and fun scroll saw project that looks great in a hallway or kid's bedroom. The inside of the backpack can have a mirror shelves, or hooks to hang jewelry.

The outside of the backpack can be any color, and any flaws in the wood will just give it a used look. Imagine a well-worn, often-used backpack—add some dents and curves where you think they belong and give this project character and unique qualities based on your imagination.



**Step 1: Cut around the perimeter of the pattern.** Then, find the interior lines that will let you divide the piece into manageable sections. I cut along the flap line. Keep a small piece of sandpaper handy to remove any burrs generated by the cutting.

**Step 2: Cut out the segmentation pieces.** Label a master copy of the pattern and the bottom of each piece with a number for easy assembly. Remove the pattern—the longer the pattern remains on the wood, the more difficult it is to remove. Place each piece in the corresponding location on the master pattern.

**Step 3: Make a template and cut out the backer board.** Use the segmentation pieces to draw the template for the backer board. The hanging strap portion of the segmentation is not attached to the top backer board but is glued directly to the box sides. Do not include this section in your pattern for the backer board.



**Step 4: Glue and clamp two pieces of pine together for the box sides.** Temporarily stack a piece of plywood to the bottom of this section for the box bottom. Transfer a complete pattern to this blank. Cut around the outside of the pattern and the inside of the hanging strap.

**Step 5: Cut the inside of the box.** Remove the plywood layer and the pattern from the pine box sides. Draw a line approximately  $\frac{1}{8}$ " inside the perimeter of the pine box sides blank. Drill a blade entry hole, insert your blade of choice, and cut out the inside of the box. Glue and clamp the plywood box bottom onto the back of the sides, let it dry, and sand the assembly for a good fit.

**Step 6: Shape the segmentation pieces.** Use a hand-held rotary tool or a power sander or shape the sections by hand sanding. Remove a fair amount of wood from the pockets and flap on the backpack. Sand these areas smooth. This gives the appearance of a fold and implies that the leather is soft. Sanding the edges of all of the pieces gives the project a finished and coordinated look; the pieces flow together, yet are very distinct. Shape the hanging strap segmentation pieces at this time as well.

**Step 7: Position the segmentation pieces on the backer board.** Arrange the pieces on the backer board and cut shims for any sections you would like to raise. Shims should only be used on inside pieces. You do not want them to show and detract from the project. Complete any final shaping of the segmentation pieces to achieve a natural flow.

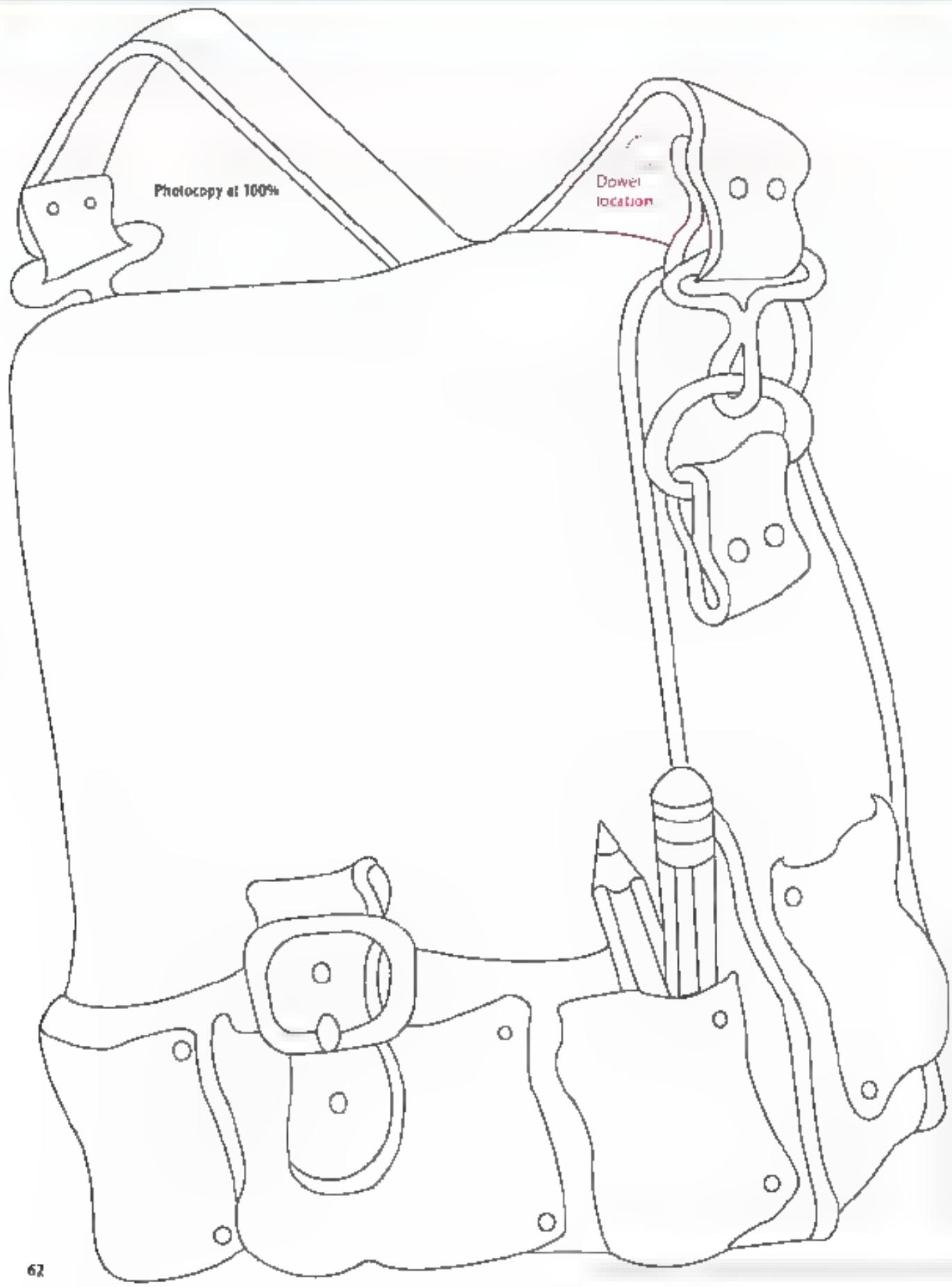


**Step 8: Color and finish the project.** Finishes on any project are a matter of personal choice. The key is to put as much energy and effort into the finishing as you did the rest of the project. I use leather dyes to color my backpack. To distress the finish, sand different spots with 220-grit sandpaper to make some lighter areas. Use metallic paint for the buckles and acrylic washes for the pencils. Finish the base of the box as well.

**Step 9: Glue the segmentation pieces to the backer board.** Arrange all the pieces on the plywood backer. Remove one inside piece, apply a small amount of wood glue, and return it to the original position. Clamp the piece in place, and allow it to dry overnight. Continue outward from the center piece, removing, gluing, and clamping pieces from the inside toward the perimeter. Glue the segmented pieces for the hanging strap directly on the box sides.

**Step 10: Assemble the box.** Drill the hole for the dowel that will hold the top to the box. Drill a hole the same diameter as your dowel halfway through the pine box and halfway through the segmented portion and backer board of the lid. Cut the dowel to fit, letting the top of the box lie flat. Glue the dowel into the bottom box. Attach the latch hook onto the left side of the box with small screws. Sign the back of your project.

**Step 11: Create the peg rack.** You can use a commercial peg rack or create your own. Drill holes the same diameter as your pegs into a length of wood and glue the pegs into the holes. Attach a hanger to the back of the coat rack board. Hang the backpack on the coat rack board with the peg going through the strap opening on the upper left-hand corner.





# Dragon Chest

**Original designs and vivid colors are highlights of this distinct box**

*By Kenneth Campbell*

I crafted this project to meet my personal preferences and never imagined it would be awarded the grand prize in SSW&C's Best Project Design Contest. When I read about the contest, I decided to enter the chest, just for fun. The dragon design started out as a drawing that had nothing to do with woodworking. I thought it would be fun to design a dragon tattoo. So I started doodling and ended up with a sketch of the main dragon that adorns the lid.

Once the dragon design was on paper, it just seemed natural to cut the design out of wood. I transferred the image to  $\frac{1}{2}$ "-thick poplar and cut it out. I had no idea what I would do with the cutout at that point, but I decided to add some texture. As I worked on the dragon, the idea of a mint chest slowly took shape, and I incorporated elements of the main design in the tray work and box sides. I wanted to showcase the dragon design and decided to stain it black and add a bright backing board for contrast. I'm very pleased with the end result and am thrilled that my project was chosen as the contest winner.

**Step 1: Transfer the patterns to the blanks.** Apply spray adhesive to the backs of the patterns, and position them on the blanks.

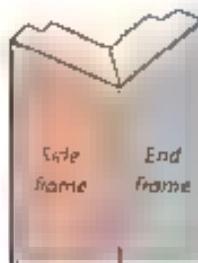
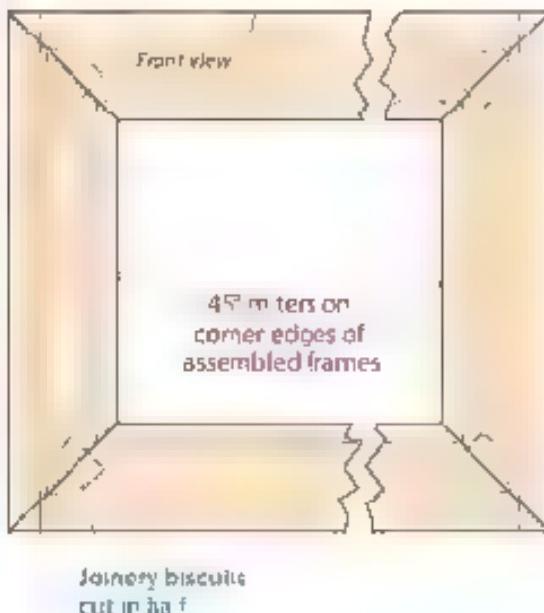
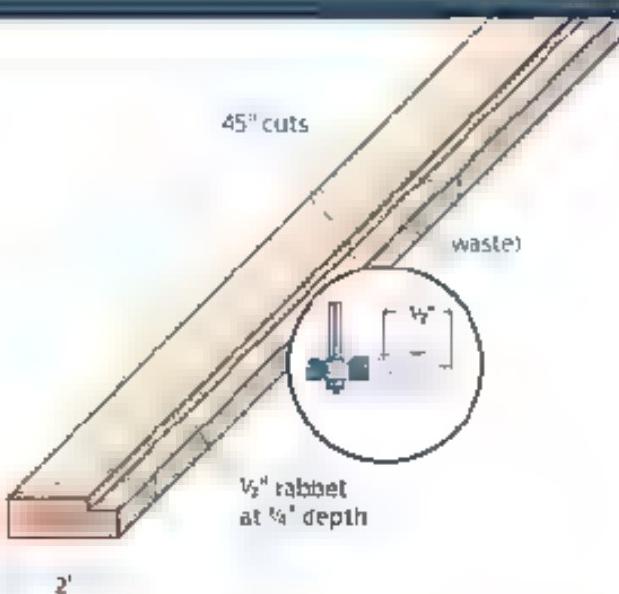
**Step 2: Prepare the frame overlay pieces for stack cutting.** The long sides and short sides are mirror images of each other, so when you stack them together be sure the sides of the wood you want to be the bottoms are facing each other. Wrap blue painter's tape around the edges to hold the stack together. I cut the pieces to size and cut the miters with a miter saw. Note that not all of the patterns are an equal width.



**▲ Step 3: Cut out the patterns.** Drill blade entry holes where needed with a  $\frac{1}{8}$ "-diameter drill bit. Then, cut out the pieces using your blade of choice.

**Step 4: Cut the main dragon designs.** I use a flexible shaft tool with 120-grit sanding drums to add texture. These will be affixed to the padauk after the box is assembled.

**Step 5: Finish the dragon designs.** Hand sand the pieces with 00-, 150-, and 220-grit sandpaper. Stain them with black India ink.



**Section view**  
Miters on the assembled end and side frames will join at the corners. The addition of the bottom panel forms the structure of the box

**Step 6: Cut the box frame parts.** Cut three pieces of poplar to  $\frac{3}{4}" \times 2" \times 8'$ . Then, cut a  $\frac{1}{2}"$ -wide  $\times \frac{1}{4}"$ -deep rabbet on one side of each piece, see Box Frame Construction). I use a router and rabbet bit. Cut the sections to length at a 45° angle.

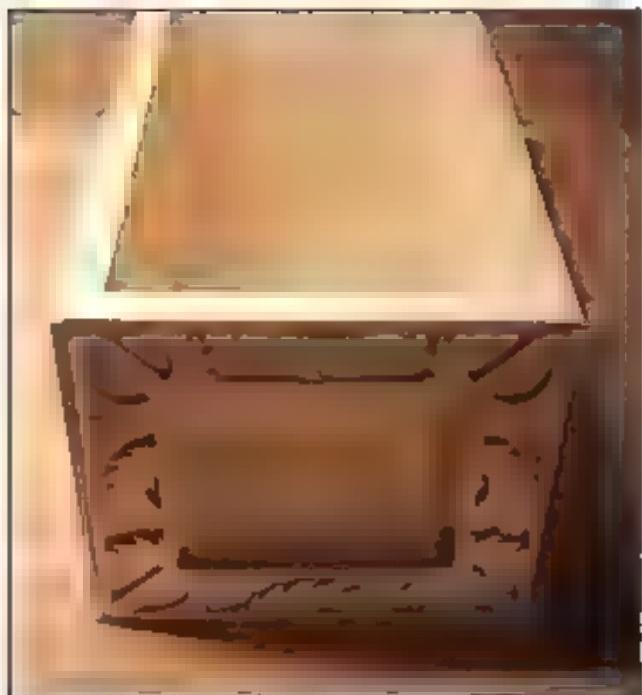
**Step 7: Cut the panels from  $\frac{1}{4}$ "-thick poplar.** Use the materials list as a guide.

**Step 8: Assemble the frames.** Cut biscuit slots on the mitered ends of all of the frame pieces. Since the wood is only 2" or 2 $\frac{1}{4}$ " wide, cut the biscuits in half! You can also use dowels or splines. Apply glue to the biscuits and miters and clamp them together until dry. When complete, you will have four box side frames.

**Step 9: Cut the miters on the frame parts.** Use a miter saw to cut a 45° miter on the sides. The top and bottom of the frame will remain square.

**Step 10: Add the panels.** Glue the poplar panels into the frames.

**Step 11: Assemble the box.** Cut the box bottom to size noted in the materials list. Assemble the box, using biscuits to strengthen the miter joints where the sides come together and where the sides meet the bottom.



**▲ Step 12: Glue the fretwork designs over the poplar frame pieces.** Be sure to position the wider side panel border side pieces so they overhang the short sides by  $\frac{1}{4}$ ". This keeps the box corners in proportion.

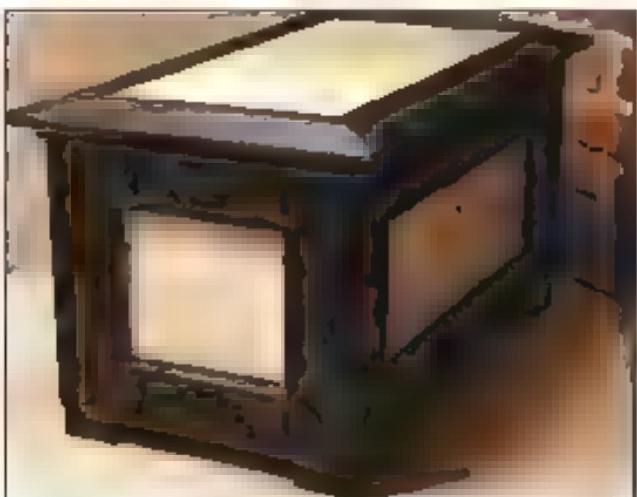
**Step 13: Cut the lid frame.** The upper framework of the lid is cut from commercial molding. For the lower framework, rip a piece of  $\frac{3}{4}'' \times 2'' \times 8'$  poplar to a width

of  $\frac{1}{4}$ " so the upper framework overhangs the lower portion—see Box Lid Construction. Use an ogee bit to rout a decorative edge along the length of the poplar. Apply wood glue to the top of the poplar and align the back edge of the molding and poplar. Clamp them together until dry. Cut the pieces to length using 45° miters on both ends. Cut the lid guide to size.

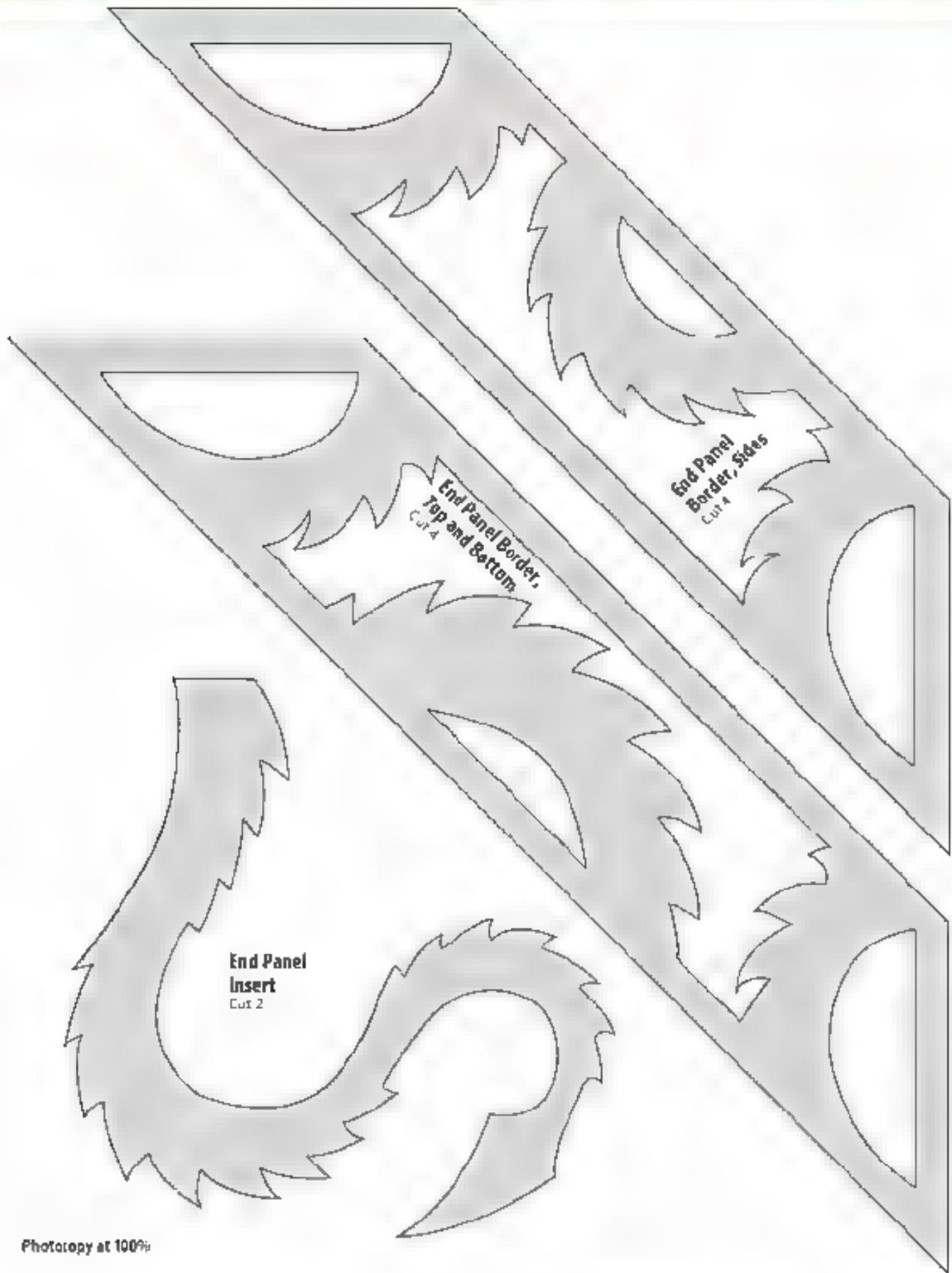
**Step 14: Assemble the lid.** Cut the lid panel to size, and glue the frame pieces to it using biscuit joints to add strength where the panel meets the frame and where the frame pieces join. The bottom of the panel should be approximately  $\frac{1}{4}$ " up from the bottom edge of the frame. Glue the bottom lid guide to the underside of the panel.



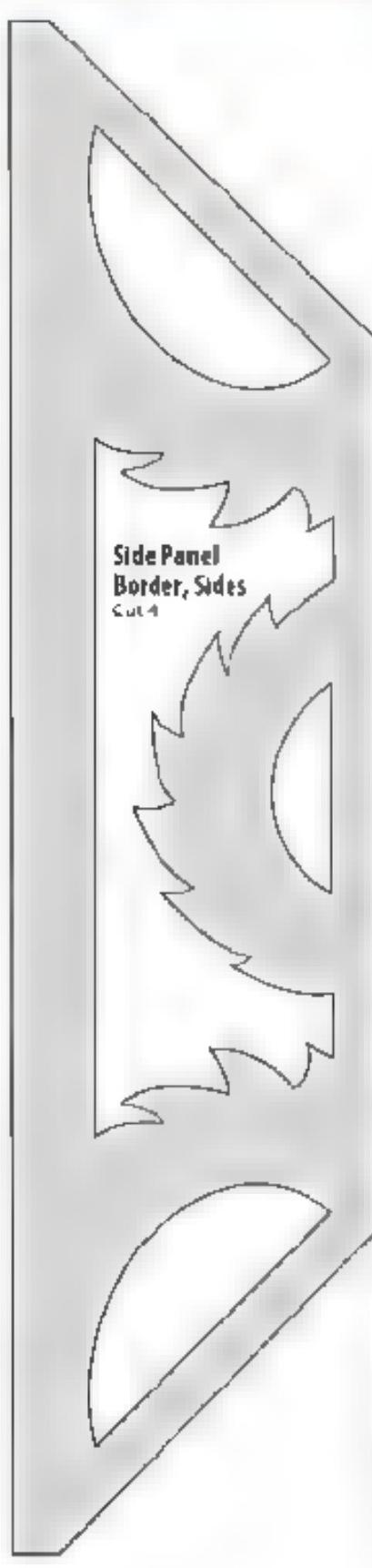
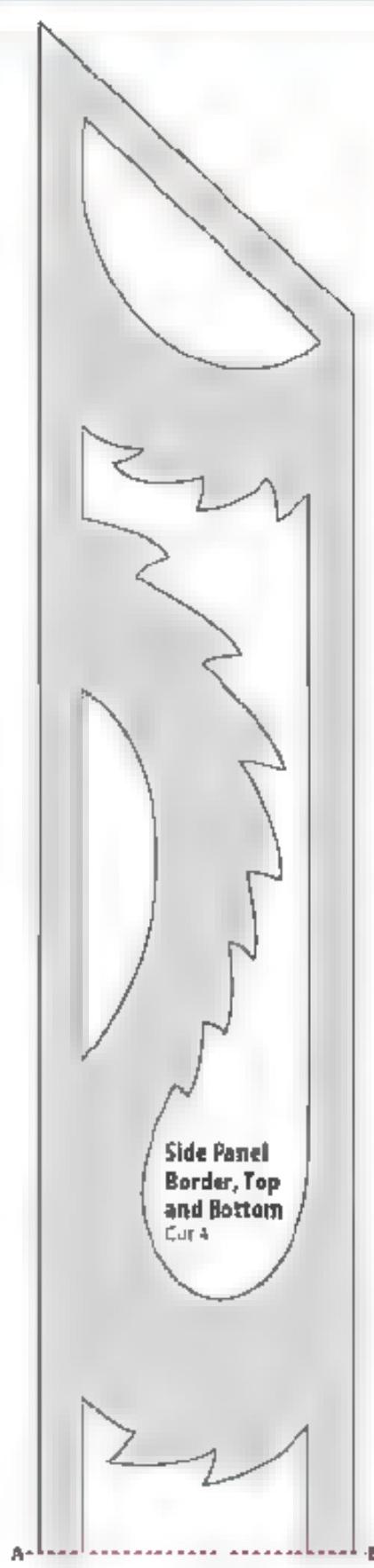
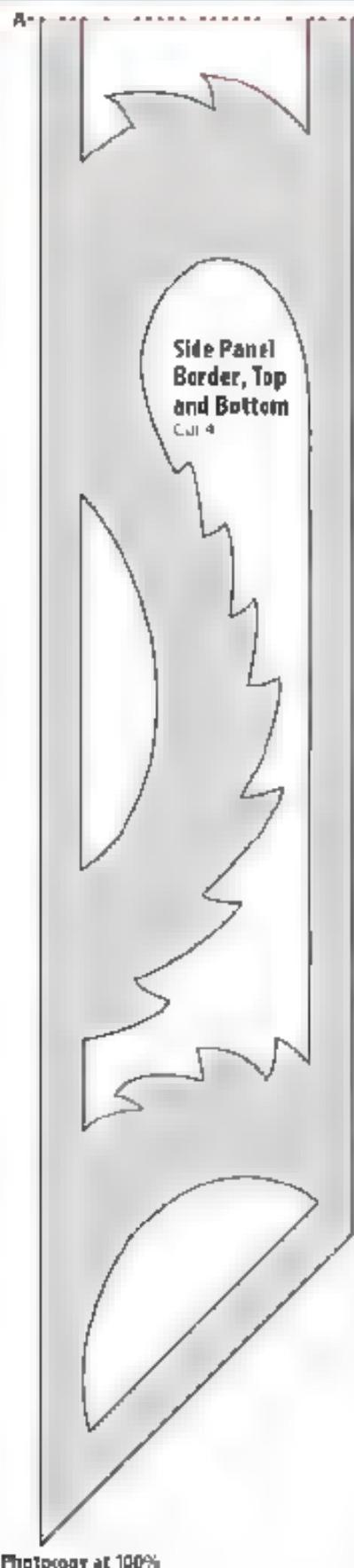
**▲ Step 15: Sand the poplar frames and fretwork overlays.** Start with 120 grit, and move onto 220 grit.



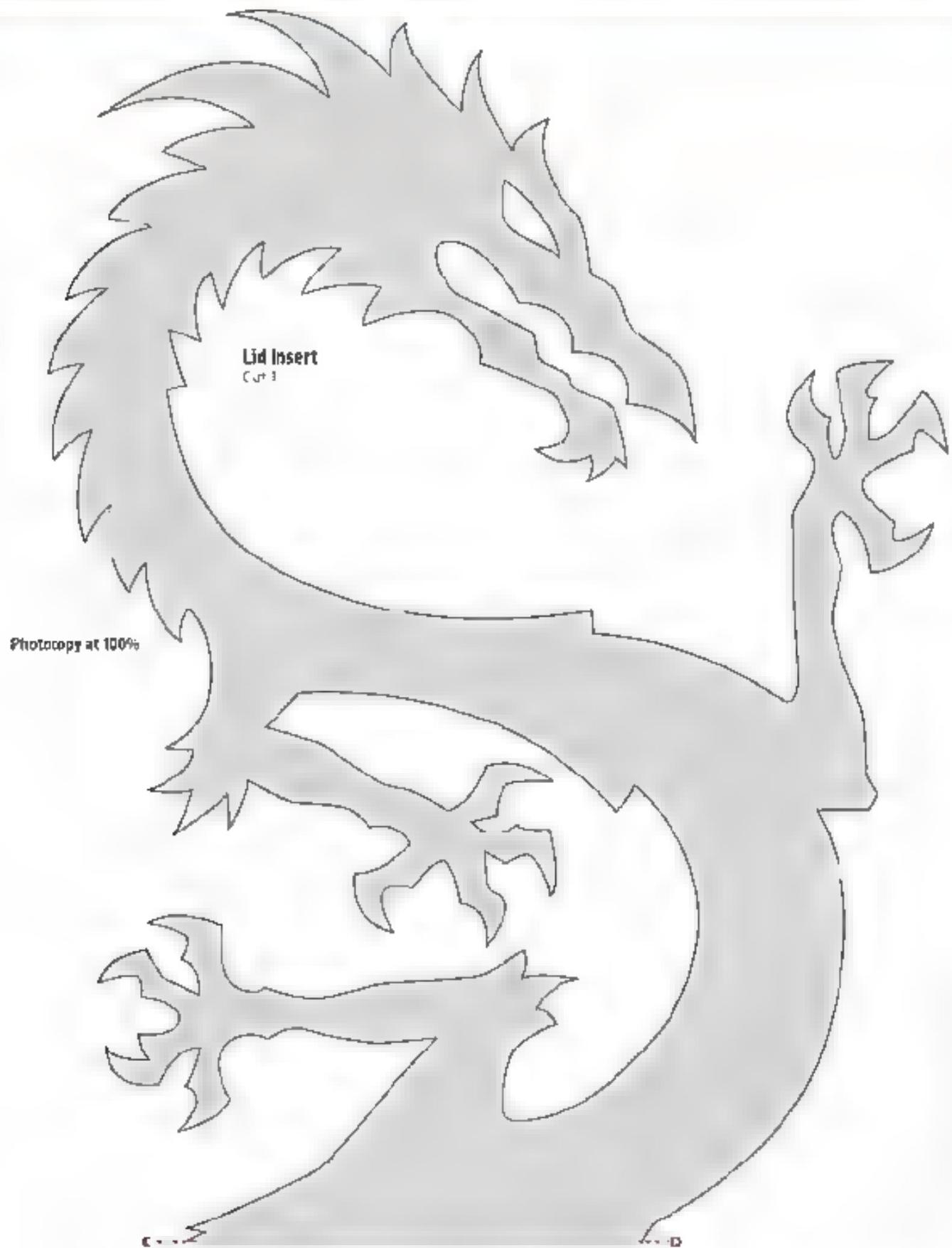
**▲ Step 16: Stain the poplar frames and fretwork with black India ink.** Tape off the inner panels and apply a clear, satin wood finish to the stained areas. Cut the feet, stain them, and glue them to the bottom.

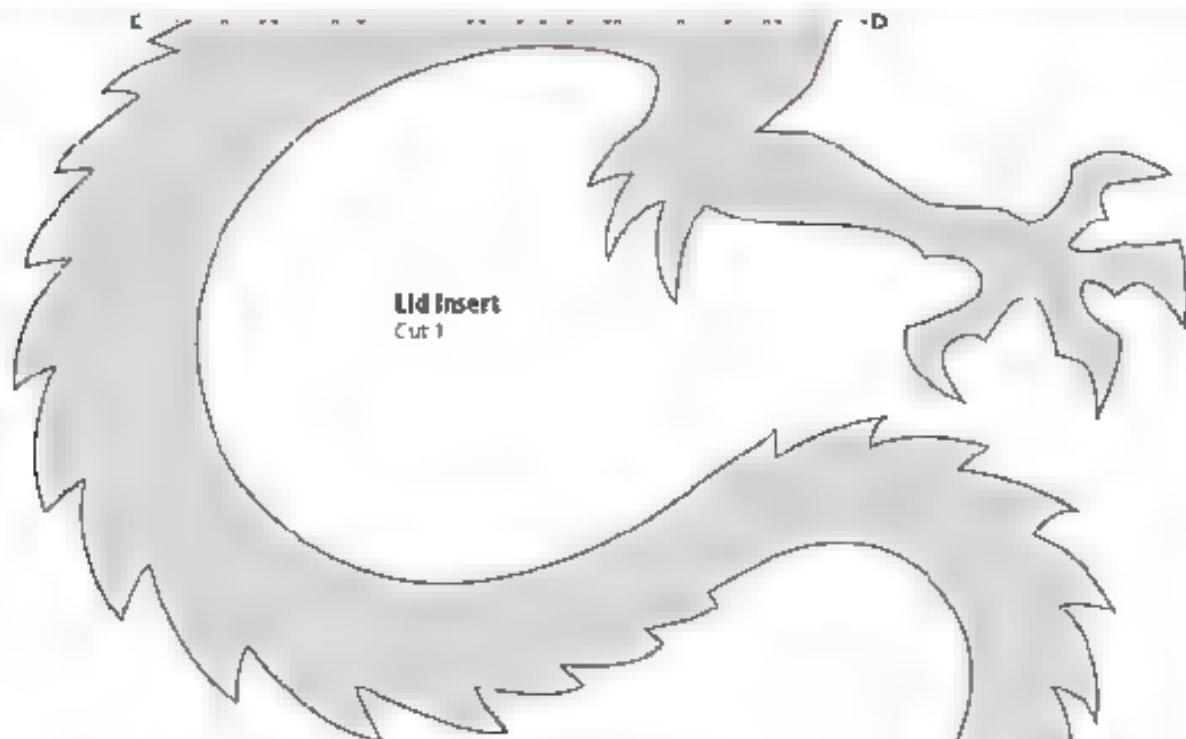


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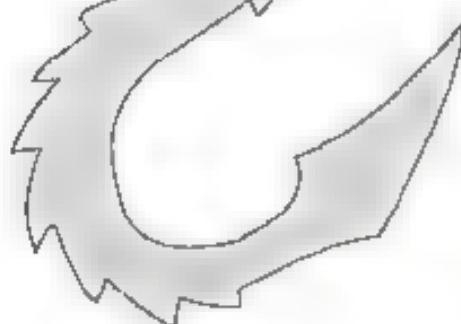


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#### *Materials:*

- 4 pieces  $1\frac{1}{2}'' \times 2'' \times 8'$  poplar (box frames)
  - 4 pieces  $\frac{3}{4}'' \times 6'' \times 7'$  poplar (end panels, end panel designs)
  - 4 pieces  $\frac{1}{2}'' \times 6'' \times 16'$  poplar (slide panels, side panel designs)
  - $\frac{1}{2}'' \times 2'' \times 8'$  molding of choice (lid frame)
  - $2\frac{1}{2}'' \times 2'' \times 8'$  poplar (lid frame, underside)
  - $3\frac{1}{2}'' \times 9'' \times 18'$  poplar (lid panel)
  - $7\frac{1}{2}'' \times 1'' \times 8'$  poplar (bottom lid guide)
  - 2 pieces  $\frac{1}{2}'' \times 6'' \times 7'$  padauk (end panels)
  - 2 pieces  $1\frac{1}{2}'' \times 6'' \times 16'$  padauk (side panels)
  - $3\frac{1}{2}'' \times 9'' \times 18'$  padauk (top panel)
  - $4\frac{1}{2}'' \times 9'' \times 18'$  poplar (bottom)

- 4 pieces 4" x 2" x 20" poplar (side panel border, top and bottom)
  - 4 pieces 4" x 2" x 11" poplar (end panel border, top and bottom)
  - 4 pieces 5/8" x 2" x 10" poplar (end panel border, sides)
  - 4 pieces 5/8" x 2 1/4" x 10" poplar (side panel border, sides)
  - 1/2" x 9" x 16" poplar (for dragon design)
  - 4 pieces 1" x 3 1/2" pine (beams)

**Wood biscuits**

  - Assorted grits of sandpaper up to 220 grit
  - Black India ink

## **Materials & Tools**

- Clear spray lacquer, high-gloss and satin
  - Masking tape
  - Wood glue and 1400-DURO epoxy

Tangts

- #3 reverse-tooth blades or blades of choice
  - Miter saw and table saw
  - Router with  $\frac{1}{2}$ " radius rabbit bit and decorative edge bit of choice
  - Biscuit pointer or biscuit-joint router bit
  - Assorted clamps

# Layered Boxes

Layered boxes involve cutting multiple layers and gluing them together to create a box. This technique can create many unique shapes and often gives you the opportunity to incorporate contrasting woods and inlays into a project.

*Maple Leaf Jewelry Box,  
by Gary MacKay, page 83.*





# Texas Hold-'Em Caddie

This handy storage box is cut in layers making it easy to adjust the size to your needs.



Decorated with the suits from a deck of cards, this stylish box stores everything but the pretzels.

Whether you're hosting poker night or meeting at your friend's house, this handsome box will keep your cards and chips ready at a moment's notice. The design is simple to scroll and can easily be modified to accommodate enough chips for any size group. This handcrafted poker caddie makes an ideal gift—stock it with a new deck of cards and some inexpensive chips for your favorite player.

In designing this box, my first consideration was to have the drawers hold two standard decks of playing cards and 100 standard-size poker chips. In order to cut the project with a scroll saw, a box this size needs to be made by laminating wood together. The box is made from one piece of  $\frac{3}{4}$ " by  $5\frac{1}{2}$ " by 48" wood with a  $\frac{1}{8}$ "-thick front and back lamination added for contrast.

If you need to store more chips, add more layers.

## TIP STAYING ON THE LINE

Go slowly when cutting corners with the scroll saw table tilted as the blade has a tendency to climb away from the pattern line.

## Materials:

- $3\frac{1}{2}'' \times 5\frac{1}{2}'' \times 48''$  poplar or wood of choice (for box and drawers)
- $\frac{1}{2}'' \times 5\frac{1}{2}'' \times 8''$  poplar or wood of choice (for drawer sections and drawer pulls)
- $\frac{1}{4}'' \times 5\frac{1}{2}'' \times 24''$  walnut or wood of choice (for box and drawer fronts and backs)
- Temporary bond spray adhesive
- Double-sided tape
- Sandpaper, assorted grits
- Wood glue
- Clear packaging tape
- Clear finish of choice

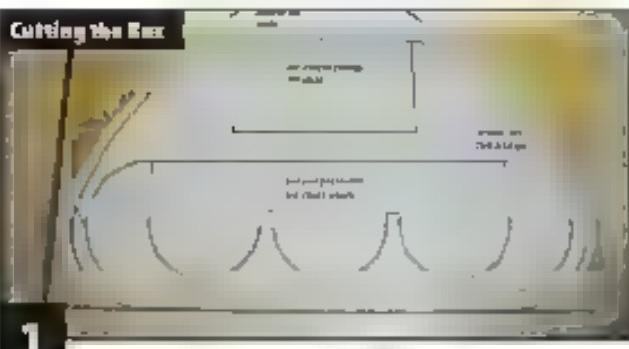
## Materials & Tools

- Tools:
  - 2½ and 17 reverse-tooth blades or blades of choice
  - Drill with  $\frac{1}{4}$ "-diameter twist drill bit
  - 6 screw-type bar clamps with 6" capacity
  - 0 scrap wood clamping blocks ( $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 6''$ )
  - Belt sander (optional)
  - $\frac{1}{2}''$  or  $\frac{3}{4}''$ -diameter drum sander
  - Flat-bladed screwdriver
  - Detail sander (optional)



Four Suit Drawer Pulls

Photocopy at 100%



1

**Prepare the wood and patterns.** Make nine photocopies of the pattern. Use a #7 blade to cut the  $4'' \times 5\frac{1}{2}'' \times 48''$  piece of poplar into six  $8''$ -long pieces. Apply spray adhesive to the back of the patterns and line up the straight bottom pattern line with the finished edge of the wood. Cover the patterns with clear packaging tape. Drill two  $\frac{1}{8}''$ -diameter blade entry holes where indicated on the pattern for each of the six pieces.



3

**Glue up the box and drawer laminations.** Remove any wood fuzzies, using 220-grit sandpaper. Glue up three sections of the box, three sections of the chip drawer, and three sections of the card drawer. Apply a thin layer of wood glue between each piece and stack the pieces together, being sure to line everything up.



2

**Cut out box drawers and compartments.** Thread a #7 scroll saw blade through the  $\frac{1}{8}''$ -diameter blade entry holes. Then, cut out the drawer for the cards and the drawer for the poker chips. Cut out the compartment for the cards and the compartments for the poker chips from the drawer pieces you removed from the main blank. Cut the outside profile of the box. Complete the cutouts for all 12 pieces. (Note: Set one drawer for cards and one drawer for poker chips aside. You will replace them with  $\frac{1}{2}$ -thick drawers sections in Step 5).



**Clamp three sections of the box and drawers together.**

Use three clamps and six scrap wood blocks to clamp the box sections together. Wait 5 minutes, then unclamp the pieces, clean up any glue squeeze-out, and re-clamp. Use two clamps and two scrap wood blocks to clamp the poker chips drawer sections together. Use one clamp and two scrap wood blocks to clamp the card drawer sections together. Follow the same procedure to clean up any glue squeeze-outs for the two drawers. Let the glue dry overnight.



5

**Cut out the  $\frac{1}{2}''$ -thick sections to replace  $\frac{1}{4}''$ -thick sections.** Use spray adhesive to attach patterns for the card drawer and the chip drawers to the  $\frac{1}{2}'' \times 5\frac{1}{2}'' \times 8''$  piece of poplar for drawer laminations. Cover the blank with clear packaging tape, and cut out the two drawers and compartments. Repeat Steps 3 and 4, using your  $\frac{1}{2}$ -thick sections to replace one  $\frac{1}{4}$ -thick section in the drawers.



6

**Sand and glue-up the box and compartments.** Use a 1 or  $1\frac{1}{2}''$ -diameter drum sander to smooth the drawer openings and poker chip compartments. Use a detail sander or sandpaper with a wooden block to smooth the inside of the card compartment. Glue up the remaining box and drawer pieces. Clamp as before, and clean up any glue squeeze-out. Let the glued-up pieces dry overnight.

These layered baskets are very easy to make. Once you're familiar with the simple techniques, you'll be surprised at how quickly you can create a set. In fact, when people ask me if I made them myself, my standard reply is, "They were lumber this morning!"

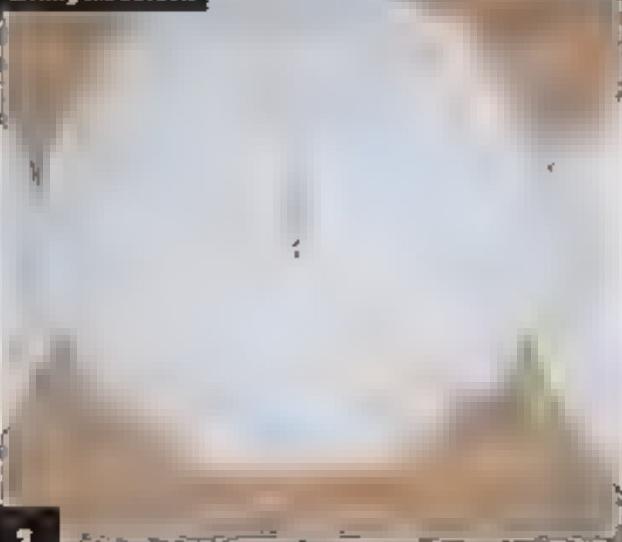
All you need to get started is a piece of  $\frac{3}{4}$ " x  $8\frac{1}{2}$ " x 25" hardwood. Walnut and cherry are good choices. For a completely different look, use pine and color the wood with egg dye to make Easter baskets.

By using cyanoacrylate (CA) glue, CA glue accelerator, and an oil finish, it's easy to finish the baskets in one day. Wood glue or a different finish will increase the drying time.

**ASSEMBLY CHART:** Follow the chart below and the labels on the pattern to assemble the bowls. The bowls are designed to neatly nest inside each other for storage when not in use.

Ring	Top Ring	Second Ring	Third Ring	Bottom Ring
A	#1	#2	#3	#4
B	#1	#2	#3	#4
C	#2	#3	#4	NA

### Cutting the Baskets



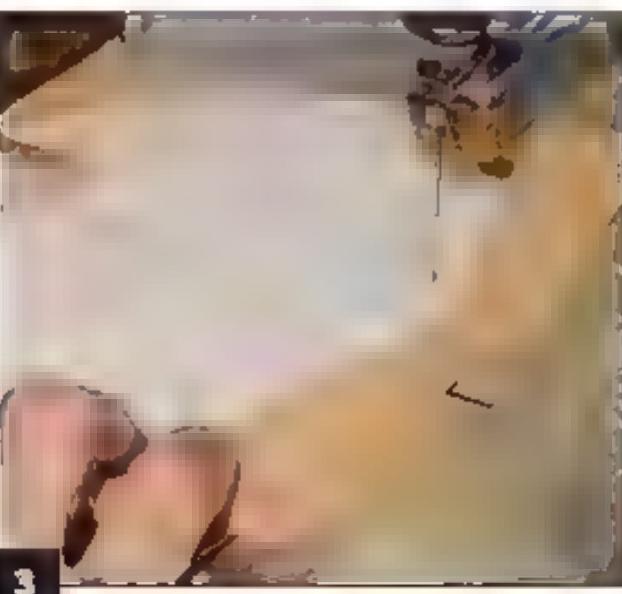
1

**Transfer the patterns to the wood.** Choose a piece of wood that is clear of knots. Apply spray adhesive to the back of the patterns and position them onto the blank. Align the straight entry lines on the patterns with the grain. This helps hide the joints when the rings are glued back together. Apply clear packaging tape on top of the patterns as a blade lubricant to reduce burning when cutting dense hardwoods.



2

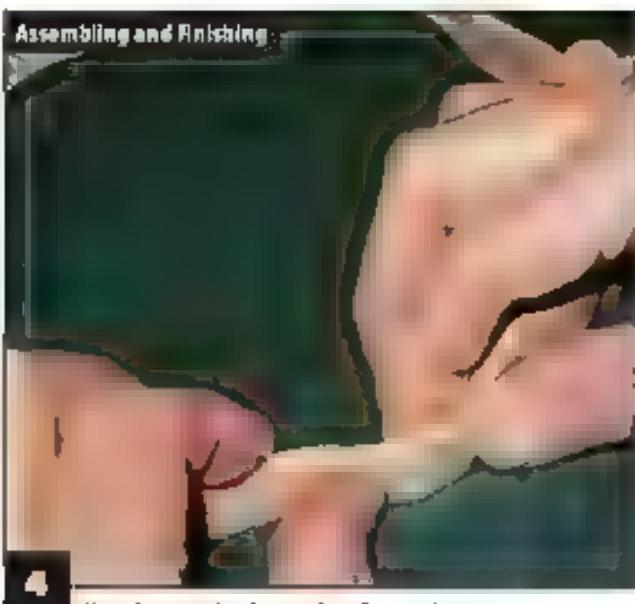
**Create an angle block.** Use scraps from the corner of your stock to glue up a 3" x 3" block of wood. Measure in  $\frac{1}{16}$ " from the edge and use a ruler to make a mark perpendicular to the stock. Measure in and make a mark at  $3\frac{1}{4}$ ",  $3\frac{1}{2}$ ",  $3\frac{3}{4}$ ",  $3\frac{5}{8}$ ", and  $3\frac{7}{8}$ ". Draw a line from the top of the first line to each of these marks to create a series of angled lines. Number the lines from 1 to 5. Cut off the tip of the block so it will fit under the saw arm.



3

**Cut the rings.** Use the angle block to set the saw table to Angle 1. Cut in along the entry line and make three cuts on Pattern 1 to make two rings. Make four cuts at Angle 2 on Pattern 2 to produce three rings. Make four cuts at Angle 3 on Pattern 3. Make four more cuts at Angle 4 on Pattern 1. Set the saw to cut at Angle 5 and cut the three bases. This will give you 11 rings and three bases. Label the parts before removing the patterns.

### Assembling and Finishing



**4 Glue the rings back together.** To avoid blade entry holes, the rings are cut with the grain. Use a medium thickness cyanoacrylate (CA) glue to glue the rings back together. The glue sets in about 10 seconds. If you use CA accelerator to speed the drying time, these rings will need some sanding to smooth the glue joint. Little imperfections in the cutting or slight burn marks make the finished product look more like a real basket.



**5 Stack and glue the rings together.** Sort the rings into three piles based on the chart. Place the top ring face down on the work surface. Place Ring 2 on top of Ring 1 and mark the spots where Ring 2 intersects Ring 1. Set Ring 2 aside, add a few drops of thick gap-filling CA glue to the intersection points on Ring 1 and reposition Ring 2 on top of Ring 1. Press Ring 2 in place until the glue dries. Use the same techniques to attach the remaining ring and the bases.



**6 Apply the finish.** These baskets are meant to be turned. Since fingers are oily, I suggest an oil finish. If these baskets are to be used with food, use a food-safe finish. Apply the oil to the baskets, wait a few minutes, then wipe off any excess. If the baskets are not going to be handled, then lacquer or varnish is an acceptable finish. The baskets can also be left unfinished and allowed to develop a natural patina with age.

### Materials & Tools

- $\frac{1}{4}'' \times 8\frac{1}{2}'' \times 25''$  wood of choice
- Temporary bond spray adhesive
- Medium-thickness cyanoacrylate (CA) glue
- Thick gap-filling CA glue
- Accelerator for CA glue
- Tung oil or finish of choice
- Sandpaper, assorted grits

### Tools

- 19 precision ground skip-tooth blades or blades of choice
- Clamps or weights (to hold layers in place when gluing, optional)



# Maple Leaf Jewelry Box

Inlay contrasting woods for a striking presentation

By Gary MacKay

With a choice of 12 different patterns to embellish the box sides, you can easily create your own unique jewelry box. I've chosen a simple maple leaf design to inlay in the lid, but you could use a variety of designs to personalize your box.

## Testing Table Angles for Inlay Work

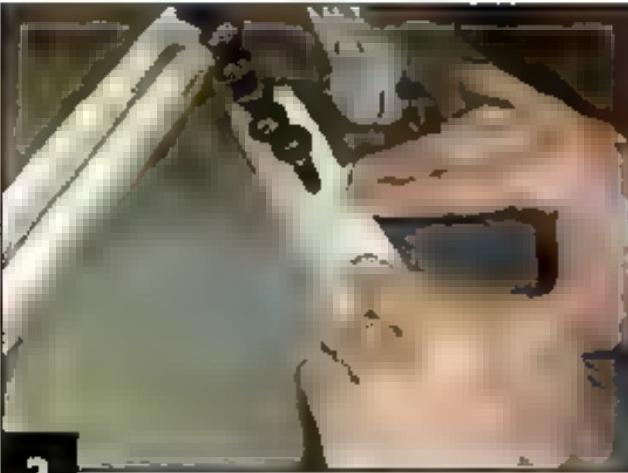
Use several strips of double-sided tape to stack two pieces of scrap together and transfer the test pattern to the blank. Some scrollers do not recommend using double-sided tape for inlay work; however, I have not found it to be troublesome. Use the same set stock and same blade that you will use for your inlay project. Drill four  $\frac{1}{8}$ -diameter holes where indicated on the pattern. Tilt the right side of your scroll saw table down 3°. Cut out one of the pattern segments in a counter-clockwise direction. The bottom piece should drop out, and the top piece should fit snugly into the hole in the bottom blank. If the top piece is too tight to fit into the bottom piece, decrease the tilt of the table. If it fits loosely into the bottom piece, increase the tilt of the table, and make another test cut.



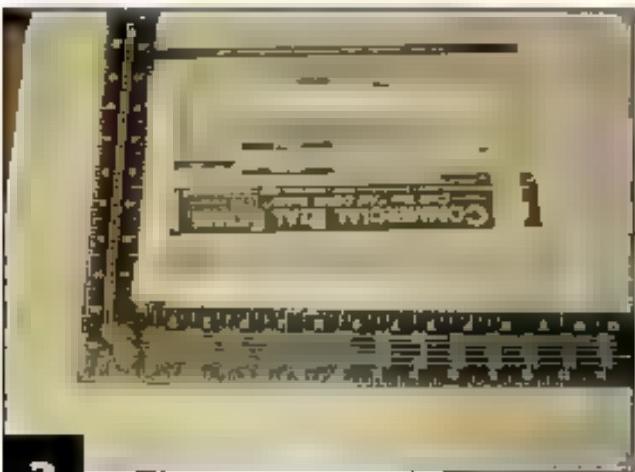
### Creating the Box Sides and Base

**1**

**Construct the box sides.** Cut the box sides to the dimensions listed in the materials list. Attach contrasting stock to each end for stack cutting. Transfer the other pattern of your choice and cut using a #20 blade. Dry fit the pieces together before gluing them in place. Wipe up excess glue with a rag. Allow them to dry overnight.

**2**

**Cut the box base and lid slot.** Use spray adhesive to attach the patterns and cut two long and two short base sides using a #5 reverse-tooth blade. Use spray adhesive to adhere the lid knob slot pattern to one of the long box sides. Use a #20 blade to cut the lid knob slot.

**3**

**Cut 45° miters on each end of the base sides and box sides.** They can be cut by tilting the scroll saw table to 45° or on a table saw. Place the base sides, mitered side down, against a straight edge alternating long and short pieces. Apply masking tape over each corner joint and halfway over one open end—turn the taped pieces over and apply wood glue to all the miters. Roll up the base sides, using the masking tape to join the final two sides. Place the base against a 90° square. Clean up any glue squeeze-out, and let dry overnight. Repeat the process for the box sides.

**4**

**Glue the box sides onto the base.** Remove the masking tape from the base and the box sides. Sand off any dried glue and round over the corners. Apply wood glue to the bottom of the box sides. Place the box sides on the base, centering the sides onto the base. You should be able to see 4" of wood on the outside and inside of the base. Clamp the box sides onto the base. Clean up any glue squeeze-out, and let the glue dry. Measure the inside box length and width. Transfer your measurements and cut out the box bottom, using a #5 reverse-tooth blade. Glue the bottom in place.

With multiple corner designs to choose from you can create a variety of custom jewelry boxes.





5

**Cut the maple leaf inlays.** Cut the lid blanks to size. Center the leaf inlay stock on the lid blank, and attach them together with thin double-sided tape. Transfer the inlay pattern to the blank. Drill two  $\frac{1}{8}$ "-diameter blade entry holes where indicated on the pattern. With your saw table tilted (see Tilting Table Angles for Inlay Work), cut out both maple leaf inlays with a #5 reverse-tooth blade. A larger blade is recommended because it is more easily bowed with the table tilted, but the tilt will compensate for the larger kerf. Separate the pieces and use cotton swabs to spread glue onto the edges of the maple leaves. Glue the leaves into the lid stock.



6

**Assemble the lid and lift-out tray.** Make sure your table is square to your blade. Apply a layer of wood glue to both the back surface of the lid with the inlays and the other lid piece. Clamp the two pieces together and let dry. Transfer the lift-out tray pattern to the stock. Drill four  $\frac{1}{8}$ "-diameter blade entry holes where indicated on the pattern. Use a #9 reverse-tooth blade to cut off the compartments. Save one of the cut-out waste pieces if you plan to line your compartments. Leave the pattern on the tray, and glue the tray bottom in place. After the glue dries, use a #20 reverse-tooth blade to cut the outside profile of the tray.



7

**Cut out the lid knob.** Transfer the pattern to the stock. Use a #5 reverse-tooth blade to make the side cuts. Back the blade out from the cut. Tilt the left side of the table down 10° and cut the curved portion of the knob. Return the saw table to 90°. Find the center of the lid side, and glue the lid knob in place so it lines up with the lid slot cut in the box side.



8

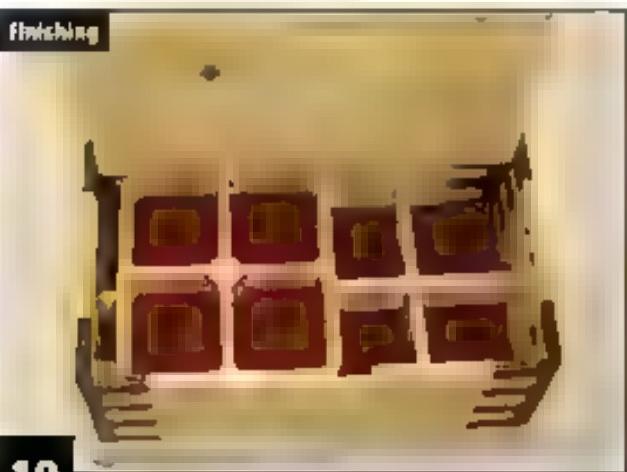
**Finish the inside of the box.** Transfer the patterns for the dividers to the stock and cut them out with a #5 reverse-tooth blade. Glue the felt to a piece of poster board with wood glue. Line the bottom of the box. Use one of the scraps from the compartments as a pattern, and cut out felt squares to line the compartment sections.





9

**Fit the lid to the box.** Measure the distance of your box from the box bottom to the bolt on the lid knob side. Make two lid stops based on this measurement and glue the stops in the inside front corners. Test to ensure that a  $\frac{1}{8}$ -inch-diameter drill bit provides a tight fit for your finishing nail. Fit the lid in place, and drill  $\frac{1}{8}$ -inch-deep holes on both sides through the box sides and lid,  $\frac{1}{8}$  inch from the back of the box and  $\frac{1}{4}$  inch down from the top of the box. If the lid interferes with the back of the box when opening, round over the back edge of the lid with your sander until it opens smoothly.



10

**Complete the box.** Sand the dividers, tray lid, and box. Apply your finish before attaching the lid. Use your finish of choice. I use boiled linseed oil, followed by one or two coats of clear shellac, and then a good paste wax. When dry, fit the lid by inserting both nails all the way into the holes. Mark the nails at the point where they meet the box sides with masking tape. Use a hacksaw or Dremel cutting tool to cut the nails about  $\frac{1}{8}$  inch short of the masking tape. Both nails should be recessed inside the holes. Fill the holes with wood filler.

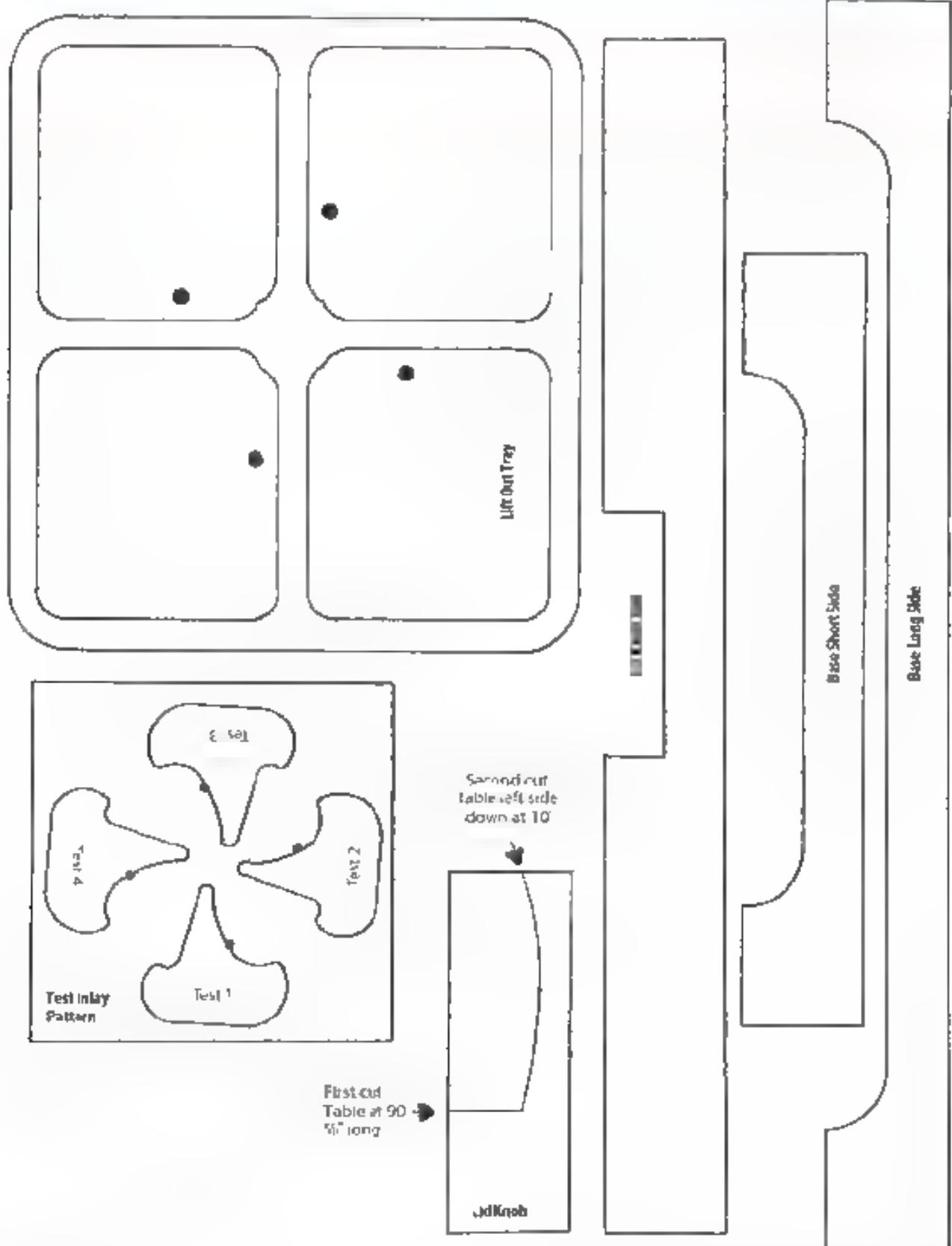
#### Materials

- 2 pieces  $\frac{1}{4}$ " x  $3\frac{1}{2}$ " x 10" poplar (box sides)
- 2 pieces  $\frac{1}{4}$ " x  $3\frac{1}{2}$ " x 6" poplar (box sides)
- 8 pieces  $\frac{1}{4}$ " x  $3\frac{1}{2}$ " x 2" walnut or contrasting stock (wood knobs, scale require only wide pieces)
- 2 pieces  $\frac{1}{4}$ " x 1" x  $10\frac{1}{4}$ " poplar (base long sides)
- 2 pieces  $\frac{1}{4}$ " x 1" x  $6\frac{1}{4}$ " poplar (base short sides)
- $1\frac{1}{2}$ " x  $5\frac{1}{2}$ " x  $9\frac{1}{2}$ " plywood (box bottom, estimated dimensions)
- 2 pieces  $\frac{1}{4}$ " x  $5\frac{1}{2}$ " x 10" poplar (lid)
- $1\frac{1}{2}$ " x 4" x  $8\frac{1}{2}$ " walnut (maple leaf inlays)
- 2 pieces  $\frac{1}{4}$ " x 3" x 3" scrap wood (rest inlay)
- 1" x 5" x  $5\frac{1}{2}$ " poplar (lift out tray may substitute 2 pieces  $\frac{1}{2}$ -inch-thick pieces)
- $1\frac{1}{2}$ " x 5" x  $5\frac{1}{2}$ " poplar (tray bottom)
- $2\frac{1}{2}$ " x 1" x 3" walnut (lid knob)
- $\frac{1}{4}$ " x  $1\frac{1}{4}$ " x  $9\frac{1}{2}$ " poplar (long compartment divider)
- 3 pieces  $\frac{1}{4}$ " x  $1\frac{1}{4}$ " x  $5\frac{1}{2}$ " poplar (short compartment dividers)

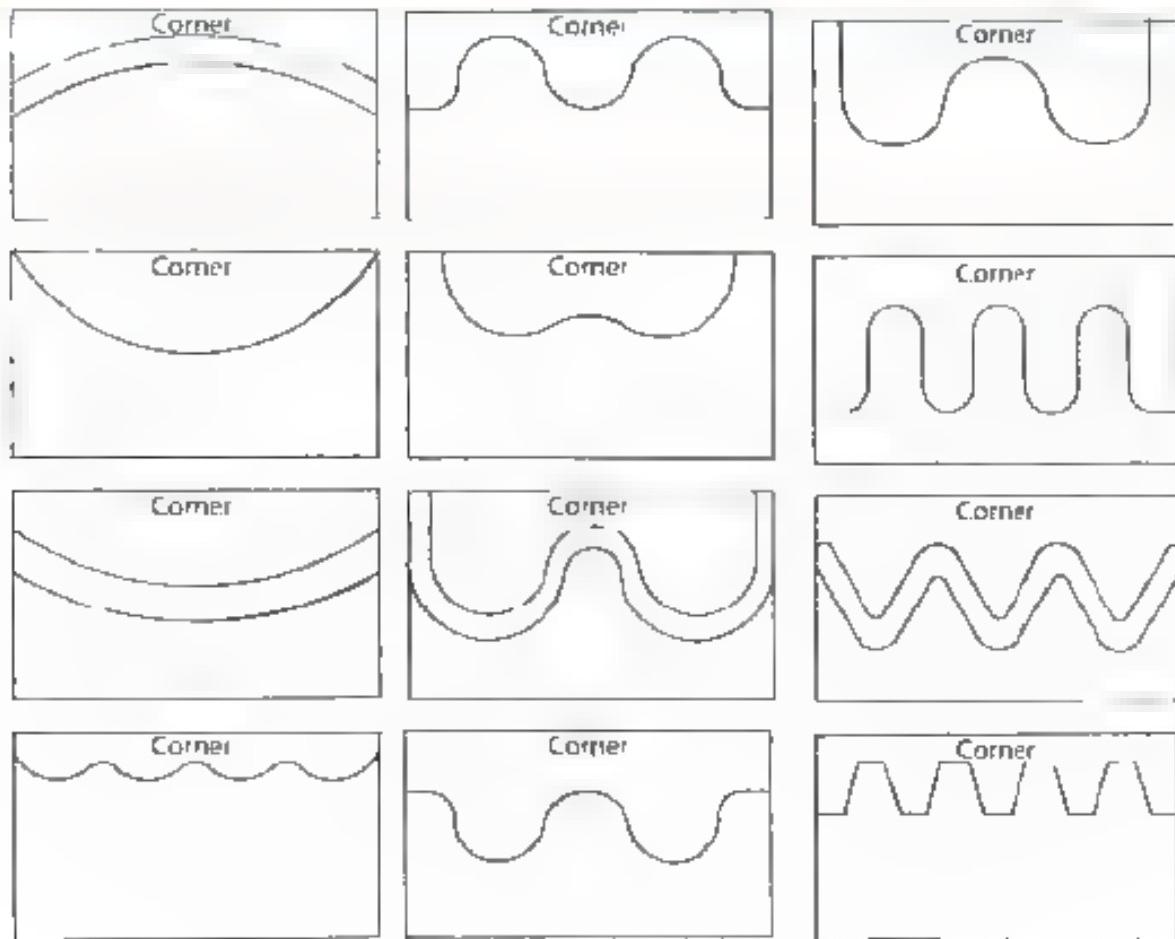
#### Materials & Tools

- 2 pieces  $\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $2\frac{1}{4}$ " poplar (lid stops, estimated lengths)
  - Temporary bond spray adhesive
  - Double-sided tape
  - Masking tape
  - Cotton swabs
  - Wood glue
  - Assorted grits of sandpaper
  - Clear finish of choice
  - Wood filler
  - 2 finishing nails, 2" long
  - $8\frac{1}{2}$ " x 11" poster board
  - $8\frac{1}{2}$ " x 11" felt
- Tools:**
- #2/0, #5 and #9 reverse-tooth blades or blades of choice
  - Drill with  $\frac{1}{8}$ -,  $\frac{3}{16}$ -, and  $\frac{1}{4}$ -inch-diameter drill bits
  - Assorted clamps
  - Large square (16" x 24")
  - A palm, orbital, or belt sander
  - Hacksaw or metal cutting Dremel tool (for cutting nails)





Photocopy at 110%



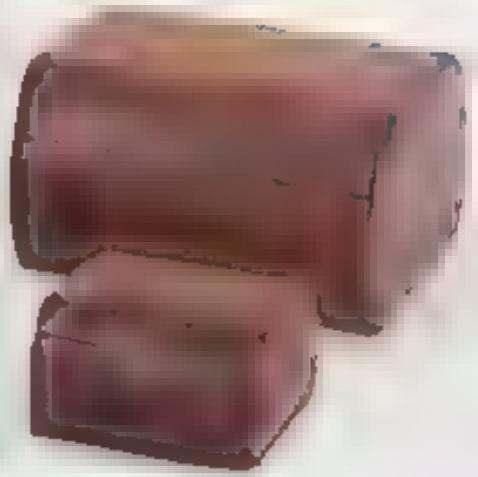
Photocopy at 170%



# Four-in-One Boxes

You'll find plenty of uses for these mahogany beauties

By Joan West



Anyone can use a few extra boxes to store easy-to-lose items like keys, jewelry, or even a few favorite recipes. You'll waste very little wood doing this simple project, and you will be more than satisfied when you wind up with four attractive boxes of varying sizes.

Mahogany is my wood of choice for this project because it sands easily and its high oil content creates a beautiful luster. Other woods that work well include pine, basswood and butternut. I do not recommend using hardwoods, such as oak, unless you are prepared to spend a great deal of time on the sanding process.

**Step 1: Prepare the work pieces.** Make 15 copies of the pattern. Seven copies are for the wall pieces, eight copies are for the end pieces. For the end pieces, just cut on the outside lines. Prepare the mahogany by sanding both sides to 150 grit.

Spray the patterns with temporary bond spray adhesive, and attach all copies to the wood in the following manner. Place the patterns of all seven wall pieces and the eight end pieces on their respective lengths of wood. Place them along the bottom edge of the wood according to the grain direction indicated on the pattern. Refer to the Suggested Pattern Layout on page 92.

**Step 2: Cut the dotted lines.** Cut through the dotted line that separates the lid from the base on all wall piece patterns and all end piece patterns. A table saw is recommended to make this cut.

**Step 3: Number each piece.** Number each wall and lid piece so they match up in final assembly.

**Step 4: Cut the wall pieces.** Using a #7 blade, cut apart each wall piece for both the lid and base on all seven patterns. Accurate cutting is

important since each cutting line affects the cutting line of another box. Continue using the #7 blade to cut out each end piece.



**▲ Step 5: Test fit the boxes.** For a more uniform finish, dry assemble the large box and check how the pieces fit. To secure pieces in dry assembly stages, wipe away all dust and apply small pieces of double-sided tape and/or wrap with masking tape. You also may want to clamp to reduce chances of pieces shifting as you work. Use the

edges where the lid and base meet as alignment reference points. If there are any pieces that are significantly out of fit, re-cut or sand to align. Go over all surfaces with a hand-held belt sander using 100-grit sandpaper. After sanding, remove the tape and/or clamps.



**▲ Step 6: Round the edges.** To round the edges for the large box, rout a gentle radius on the outside edges of both sides of all lid and base wall pieces excluding the bottom edge.

**Step 7: Wipe away all sawdust from the lid and base pieces of all boxes.** Glue together all lid and base pieces excluding end pieces, two to three sections at a time. Use a finger to apply a thin but thorough coat of glue on both surfaces. Clamp the pieces together and let dry seven to eight hours. Use at least four clamps equally spaced and tightened with even pressure.

#### **TIP A FEW WORDS ABOUT GLUE**

Don't use too much glue when gluing together lid and base pieces or the individual pieces may slip under pressure. Be sure to wipe the excess glue that seeps out when tightening the clamps.



**▲ Step 8: Sand the box insides.** Using a drum sander with 100-grit sandpaper, sand the insides of the boxes to achieve a uniform surface.



**▲ Step 9: Sand the base and lid.** Unless you have a flawless cutting technique, the edges where the base and lid meet will not be perfectly even. To obtain a gap-free seam between the base and the lid, place the edge flat against a stationary belt sander with 100-grit sandpaper until it is even.

**Step 10: Rout the end pieces of the large box.** For the large box only, rout both sides of each end piece just like you did for the wall pieces. Do not rout the bottom edge. Note that the area at the back of the boxes, where the lid and base meet (refer to pattern), should not be routed. This area needs to be flat so the hinges can be attached.



**▲ Step 11: Glue the end pieces.** Make sure the edges where the lid and base meet are perfectly aligned. Clamp and let dry.



**▲ Step 12: Sand the outsides of the boxes.** For the medium, small, and extra small boxes, sand all of the outside surfaces flush. For the large box, sand the bottom flush. A stationary belt sander with 100-grit sandpaper is the best tool for the job.



**▲ Step 13: Sand all surfaces to at least 220 grit.** A flap sander is recommended for this step.

edges where the lid and base meet as alignment reference points. If there are any pieces that are significantly out of fit, re-cut or sand to align. Go over all surfaces with a hand-held belt sander using 100-grit sandpaper. After sanding, remove the tape and/or clamps.



**▲ Step 6: Round the edges.** To round the edges for the large box, rout a gentle radius on the outside edges of both sides of all lid and base wall pieces excluding the bottom edge.

**Step 7: Wipe away all sawdust from the lid and base pieces of all boxes.** Glue together all lid and base pieces excluding end pieces, two to three sections at a time. Use a finger to apply a thin but thorough coat of glue on both surfaces. Clamp the pieces together and let dry seven to eight hours. Use at least four clamps equally spaced and tightened with even pressure.

#### **TIP** A FEW WORDS ABOUT GLUE

*Don't use too much glue when gluing together and clamping lid and base pieces or the individual pieces may slip under pressure. Be sure to wipe the excess glue that seeps out when tightening the clamps.*



**▲ Step 8: Sand the box insides.** Using a drum sander with 100-grit sandpaper, sand the insides of the boxes to achieve a uniform surface.



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**▲ Step 12: Sand the outsides of the boxes.** For the medium, small, and extra small boxes, sand all of the outside surfaces flush. For the large box, sand the bottom flush. A stationary belt sander with 100-grit sandpaper is the best tool for the job.



**▲ Step 13: Sand all surfaces to at least 220 grit.** A flap sander is recommended for this step.



**A Optional step: Sand the inside edges.** For the extra small box, use a drum sander with 100-grit sandpaper to sand the inside edges of the end pieces to provide more room inside the box.

**Step 14: Attach the hinges to the lid and base.** Pre-drill, using a bit one size smaller than the screw, to eliminate the possibility of splitting the wood. Place the hinges approximately  $\frac{1}{4}$ " to  $\frac{1}{2}$ " from the side edges.

**Step 15: Finish.** Do any touch-up sanding at this point. Apply one coat of Danish oil to all surfaces of each box, following the manufacturer's directions. Make sure the oil is completely dry. This may take up to two days depending on humidity. Then, apply paste wax and buff.

#### Materials:

- 1 piece,  $\frac{3}{4}$ " x 54" x 6"  
mahogany (seven wall pieces  
for all four boxes)
- 1 piece,  $\frac{3}{4}$ " x 15" x 6"  
mahogany (two large box  
end pieces)
- 1 piece,  $\frac{3}{4}$ " x 13" x 5"  
mahogany (two medium box  
end pieces)
- 1 piece,  $\frac{3}{4}$ " x 13" x 4"  
mahogany (two small box  
end pieces)
- 1 piece,  $\frac{3}{4}$ " x 9" x 3"  
mahogany (two extra small  
box end pieces)
- Double-sided tape and/or  
masking tape
- Wood glue
- Temporary bond  
spray adhesive
- 8 coffee branchings,  
 $\frac{1}{4}$ " x  $\frac{15}{16}$ "
- Danish oil, natural
- Paste wax
- Sandpaper, 100, 150, and  
220 grits

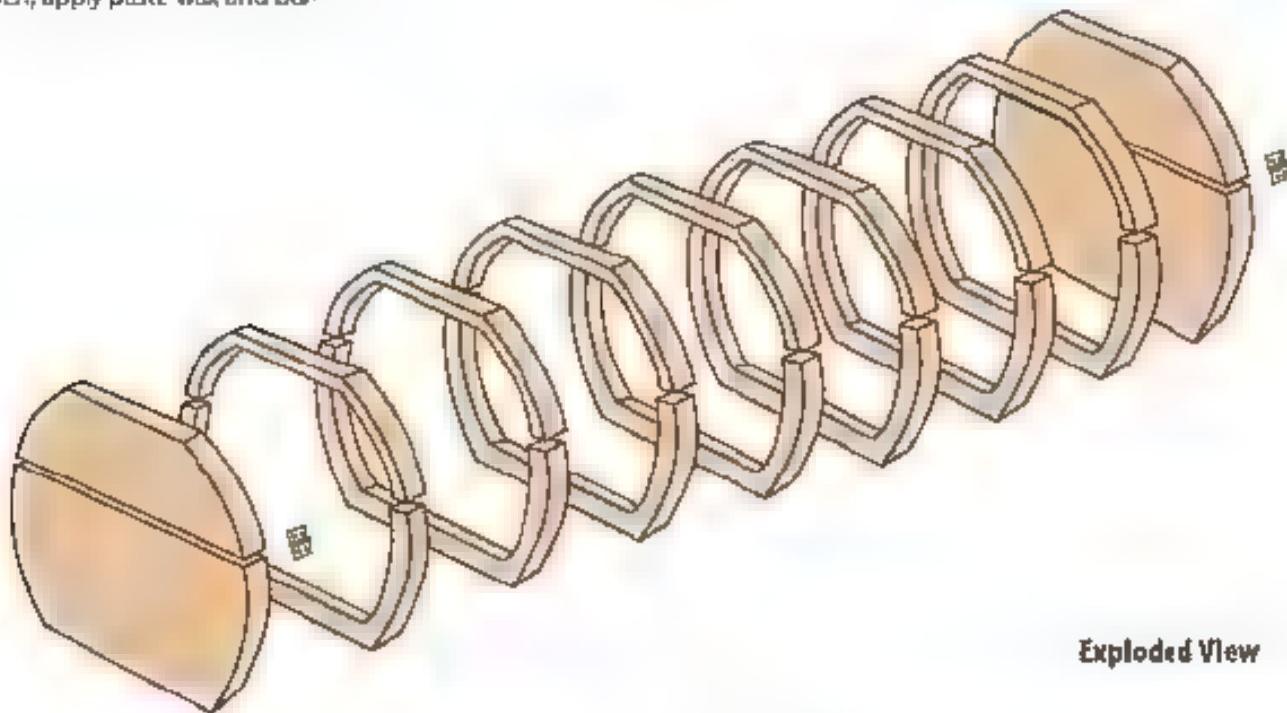
#### Materials & Tools

##### Tools:

- #7 precision ground  
tooth blades
- Small drill bits for  
predrilling hinges
- Router with 1/4"-radius bit
- Bar-style clamps
- Flap sander (recommended)
- Drum sander
- Stationary belt sander
- Hand-held belt sander
- Table saw (recommended)

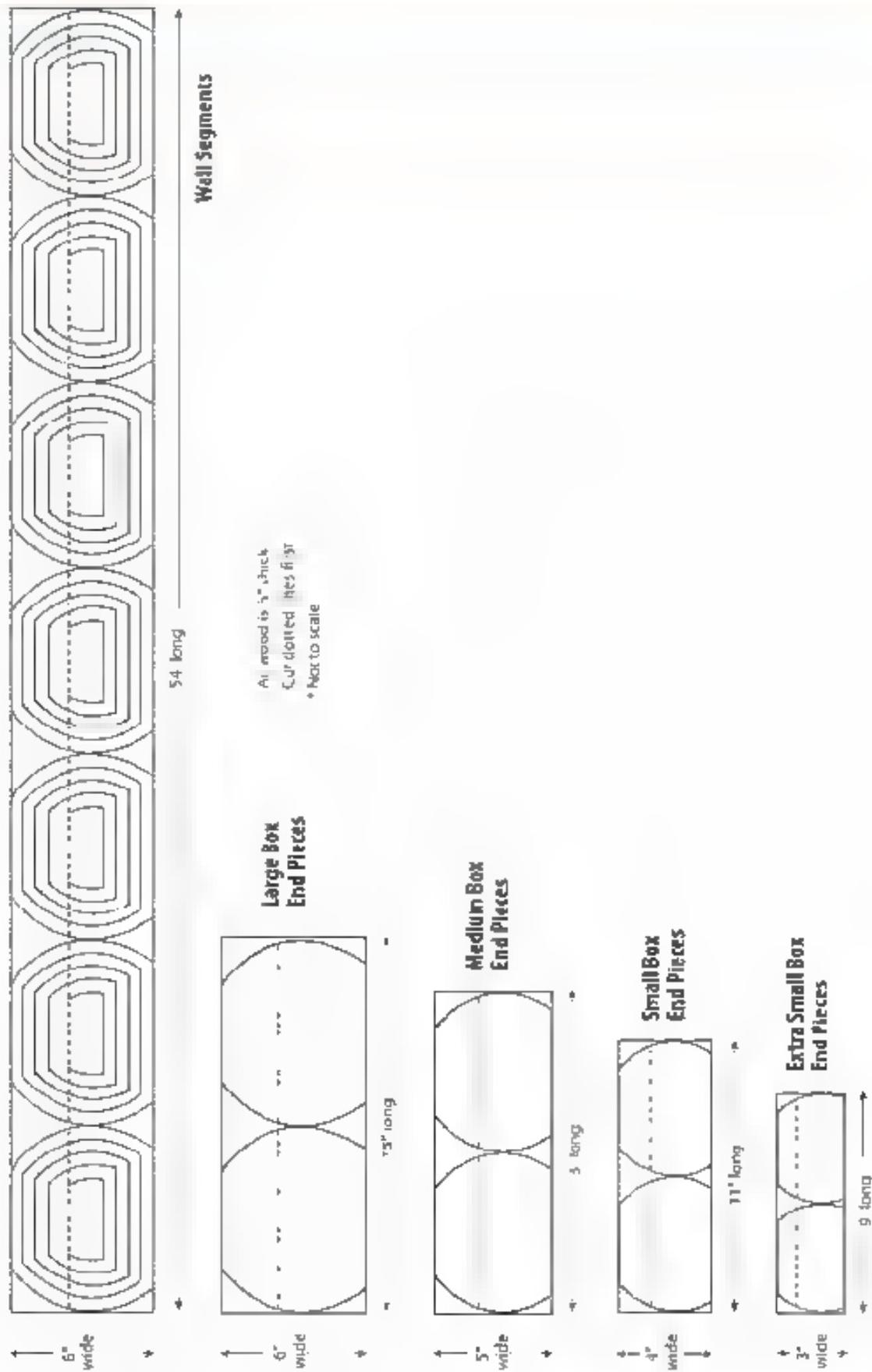
#### TIP | DON'T GET HUNG UP ON HINGES

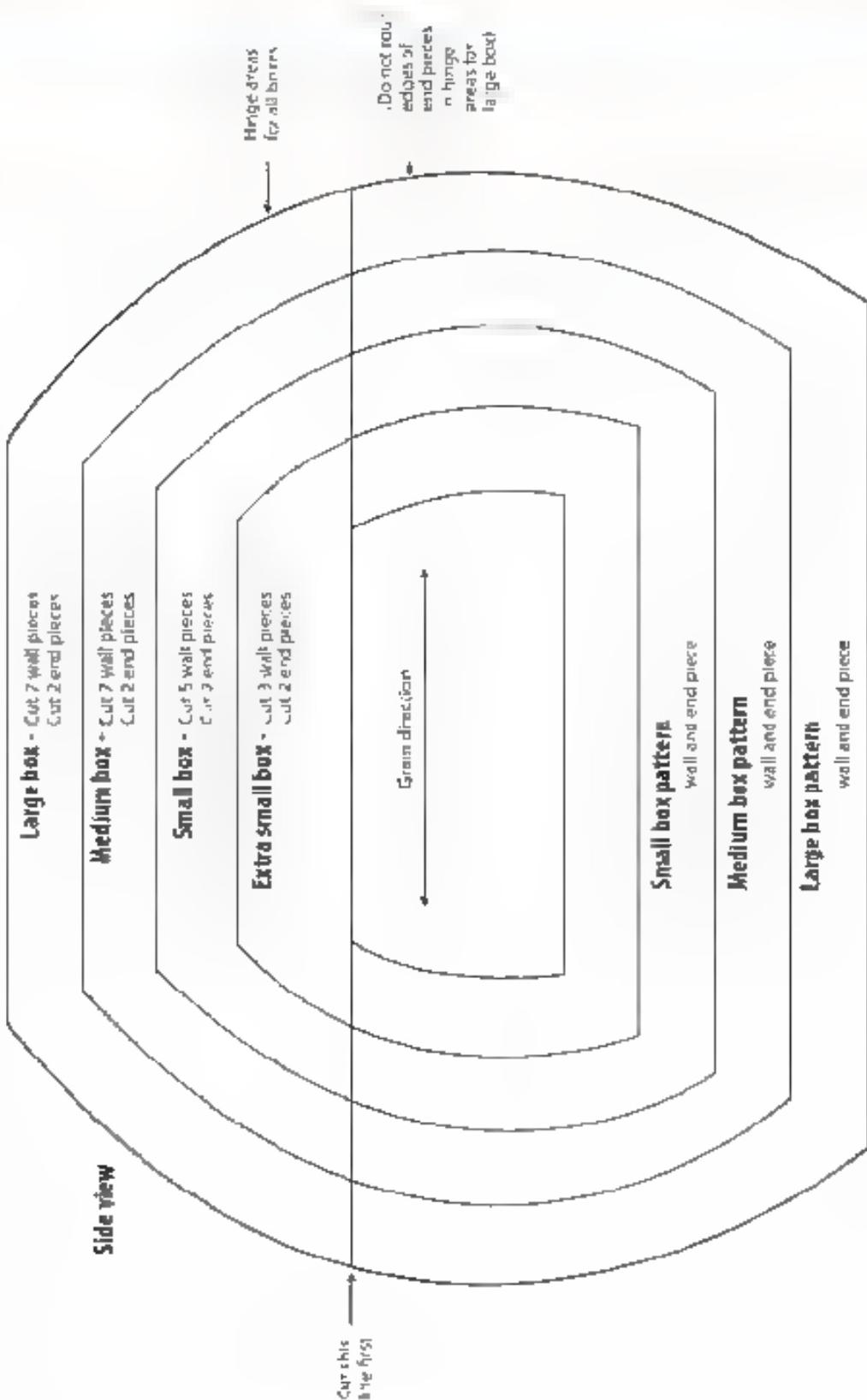
When attaching hinges, place a business card at the back edge between the lid and the base to create a small space at the back. This eliminates an inevitable gap in the front edge where the lid and base meet.



Exploded View

### Suggested Pattern Layout\*

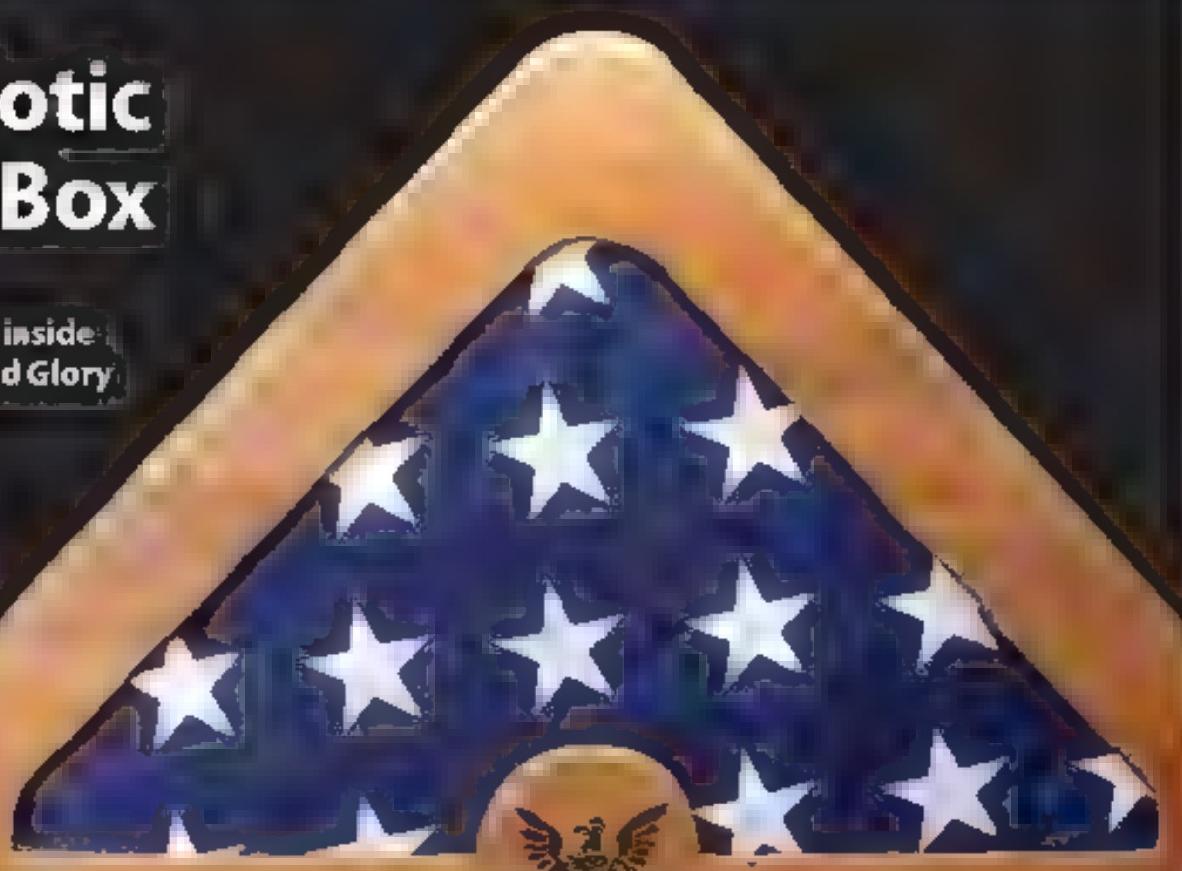




Make seven copies for wall pieces  
Make eight copies for end pieces

# Patriotic Flag Box

An attractive inside display for Old Glory



Old Glory Bravery



US Service

Honor those who sacrifice their lives for our freedom and proclaim your loyalty to your country with this flag display box. The project includes wood, brass, and Plexiglas. Though Flag Day is not traditionally a gift-giving holiday, this year you may want to make this attractive box for a serviceman that you know or a serviceman's family.

**Step 1: Gather and prepare your materials.**  
Wearing a dust mask, sand all wood with 220-grit sandpaper. Next, make five copies of the box wall pattern and apply the pattern to each layer of the wall with temporary bond spray adhesive. (You can stack cut the thin layers at the same time for increased accuracy.)

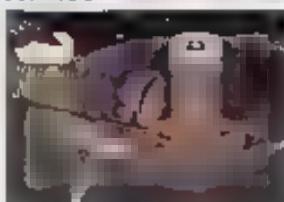
**Step 2: Cut out each layer.** Use a #7 precision ground tooth blade. Be sure to cut accurately. The more accurate your cuts now, the less time you'll spend finish sanding later.

**Step 3: Glue the layers together in the order indicated on the pattern.** I highly recommend gluing one layer at a time. (See *Gluing with Clamps*.) Let the pieces dry eight to ten hours.



## SUPER DUST CONTROL

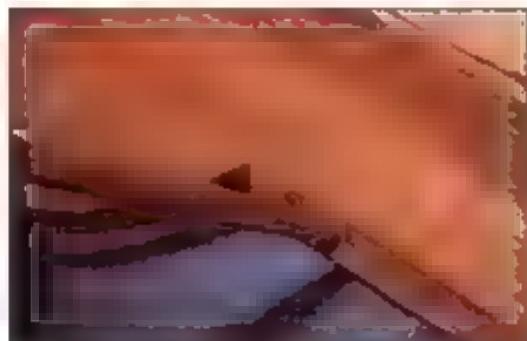
For dust control when sanding the box walls, clamp the hose of a shop-vacuum to the working surface.



**Step 4: Cut the lid and base.** Apply the lid and base patterns and cut them out with a #7 precision ground tooth blade.

**Step 5: Cut out the Plexiglas insert.** A pattern for the Plexiglas is provided. However a more accurate pattern may be obtained by using the cutout opening of the box lid you have cut and adding  $\frac{1}{8}$ " to  $\frac{1}{4}$ " all around the edges. Wrap the Plexiglas in two layers of duct tape. Doing so lubricates the #5 Plexiglas blade so the plastic does not heat up and fuse back together behind the blade.

**Step 6: Rout the edges.** Using a  $\frac{1}{4}$ " round-over router bit, rout the top outside edges of the lid and base. Sand the lid and base surfaces with 320-grit sandpaper. Using a progression of 150- to 220-grit sandpaper, sand the inside cutout of the lid enough to soften the edge.



**▲ Step 7: On the underside of the lid, rout a rabbet for the Plexiglas.** It should be  $\frac{1}{8}$ " deep and  $\frac{3}{8}$ " to  $\frac{1}{4}$ " wide. Using a utility knife, carve out the areas the router can't reach.

**Step 8: Sand the Inside and outside surfaces of the box wall.** Use a belt sander finishing sander, and/or a drum sander. Begin with 100-grit sandpaper and work to 320 grit. (The inside needs only to be worked to 150 grit).

**Step 9: Glue the box wall.** Center the box wall on the underside of the box lid, glue, and clamp in place. Let it dry eight to ten hours.

**Step 10: Drill  $\frac{1}{8}$ " clearance holes on the box base as indicated on the pattern.** Using these holes as reference, drill  $\frac{1}{8}$ " screw holes in the box wall. Countersink the holes on the base so the screw heads are flush.

**Step 11: Attach the letters.** Cut out the personalized lettering with a #2 precision ground tooth blade. Glue the letters in place.

**Step 12: Cut the brass eagle.** Affix the brass on top of scrap wood with two layers of clear packaging tape. Apply the eagle pattern. Spray a #2 metal-cutting blade with silicon, spray the blade while it's in the saw. Cut out the eagle.

**Step 13: Apply one coat of Danish oil.** Carefully follow the directions on the can. Let dry 72 hours.

**Step 14: Apply a satin finish coat.**



**▲ Step 15: Add the Plexiglas.** Bead a thin line of caulk in the rabbet and insert the Plexiglas.



**▲ Step 16: Attach the eagle.** Carefully sand away the finish beneath the eagle mounting area and glue the eagle in place with cyanoacrylate glue. Apply weight to keep it in place and let the glue dry for an hour.

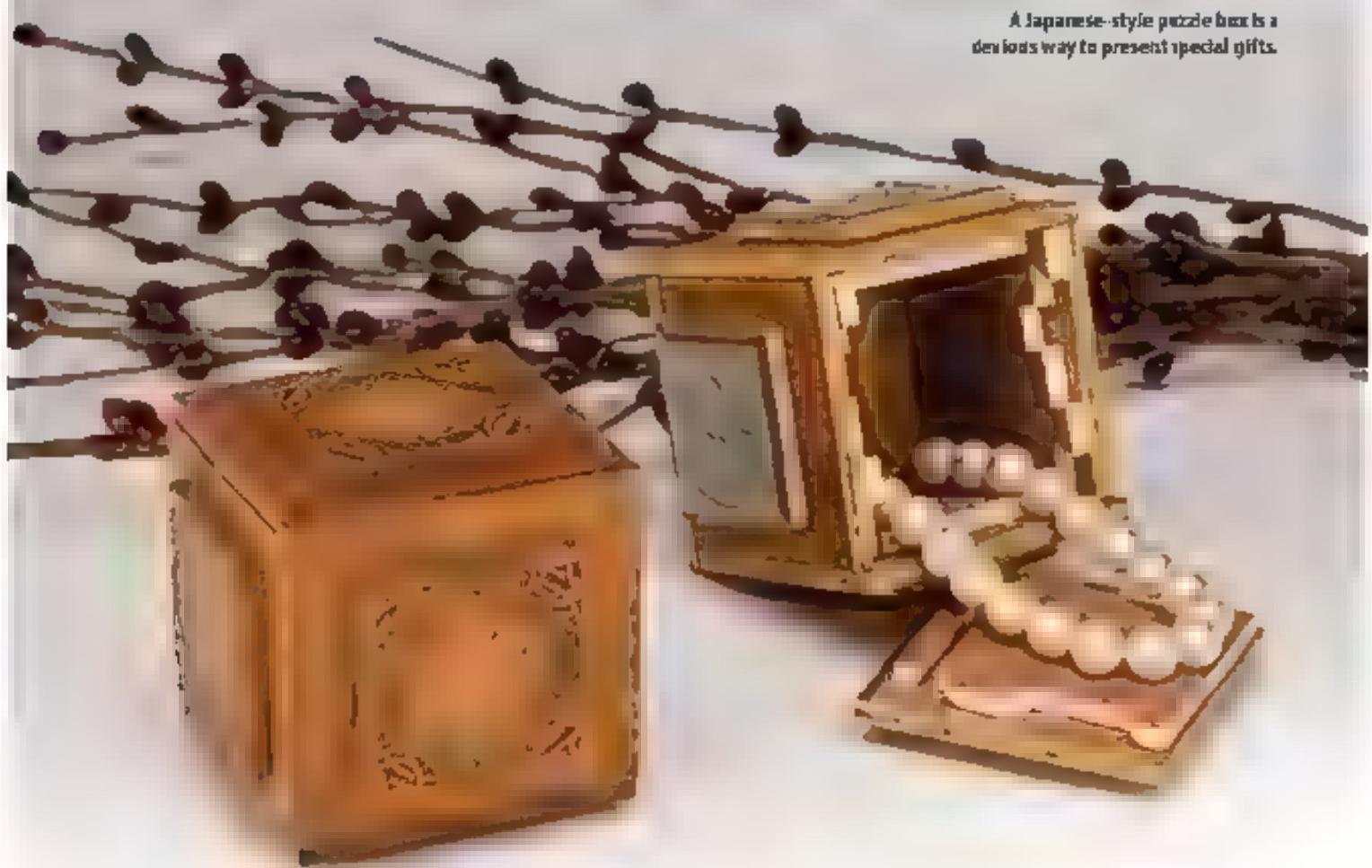
# One-of-a-Kind Boxes

As you'll see in this section, boxes aren't limited to just traditional boxes. Puzzle boxes, which can make great gifts, are some of the more unique box types. We've also included here a box with a wooden bow, a natural edge box, and a patina flower box, just to get your imagination going.

*Secret Chamber Puzzle Box,  
by Karl Taylor, page 106.*



A Japanese-style puzzle box is a devious way to present special gifts.



## Sliding Panel Puzzle Box

**Unlock the mystery by sliding the hidden panels**

*By Bruce Viney*

*Hardwood version cut by Ben Flink*

Amaze your friends and family with this ingenious puzzle box. Follow a specific sequence of movements to unlock the panels. Once the six-step puzzle has been solved, the top panel can be removed. Each panel looks identical on the outside, making the solution more difficult than it appears.

The box consists of six sides labeled A through F. Each side consists of four layers or panels. Each outer panel connects to an inner panel with a slider that fits inside a hole cut in the box side. The inner panels create the locking mechanism for the box.

The box sides, labeled Layer 3, make up the framework of the box. To make the puzzle more difficult to solve, orient the wood grain in the same direction on all six box sides. The

outer panels, labeled Layer 1, move in turn moving the inner panels that lock the box together.

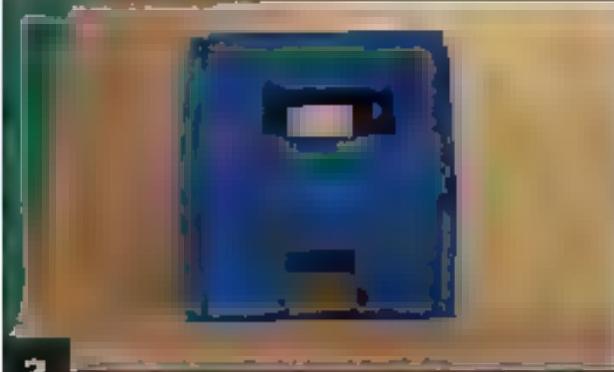
The only tricky cuts are on the inside panel of Side E, which is the removable top of the box. While a miter saw makes it easier to cut the angles on the panel, you can cut the entire project with a scroll saw. To make construction and assembly easier, the panels have been color-coded in the instructional photos, patterns, and assembly diagram.

When assembling the pieces, use small amounts of glue to prevent it from squeezing out and interfering with the movement of nearby pieces. Let the glue dry for each section before moving on to the next step.

### Preparing the Layers

**1**

Cut Layers 1, 2, and 3. Use the patterns to cut the three different layers for each of the six sides. Label the back of each piece lightly with pencil. All six outer panels (Layer 3) are identical and can be stack cut.

**2**

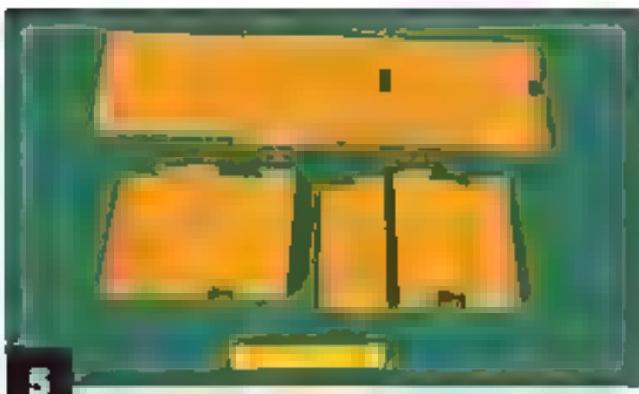
Dry assemble the box sides. I built a simple jig to hold the pieces together. Screw two  $\frac{1}{4}'' \times 1\frac{1}{2}''$  pieces of wood at right angles to each other on a larger piece of wood. The raised edges make it easy to dry assemble the sides.

**3**

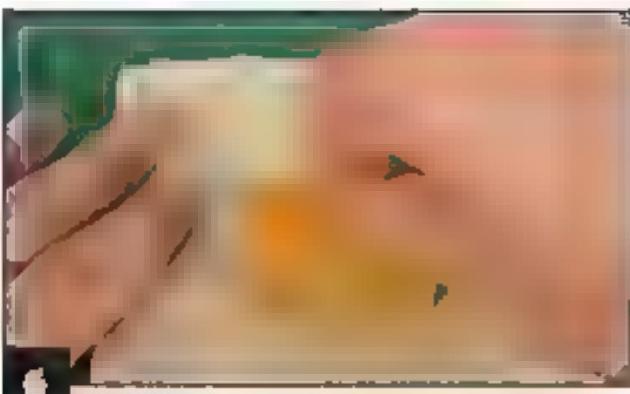
Test the movement of the sliders. Most  $\frac{1}{8}$ -inch-thick plywood is thicker than  $\frac{1}{4}$  inch. The sliders (Layer 2) must move the thickness of the plywood, so you may need to trim the slider. Position each slider in its respective hole and test the open area with a piece of scrap plywood. If the slider and scrap wood do not both fit in the hole, trim the end of the slider.

**4**

Cut Layer 4 of Side E. The inside panel for the top of the box requires mitered cuts. Cut along the black lines to ensure the panel is the proper size. Tilt the right side of your saw table down at a 45° angle and cut in along the red lines. Angle the left side of your saw table down 45° and cut along the blue lines. Cut along the dotted lines with a knife to free the triangular chips.

**5**

Cut the remaining inner panels. Use the patterns to cut the remaining panels for Layer 4. Layer 4 on Sides A and C are each made up of three panels. Sides B, D, and F have a single panel for Layer 4. Side E uses the panel cut in Step 4 along with a top rail. Label the back of each piece lightly with a pencil.

**6**

Test the fit of the inner panels. Layer 4 creates a recessed inside Layer 3. The pieces must fit snugly but move freely, especially on Sides A and C. Sand the edges of any tight panels. Sand a little from the ends of each of the three panels that make up Layer 4 on Sides A and C. The panels must fit together side to side, sit flush with the sides of Layer 3, and move freely.



- 7** **Assemble Layer 4 of Slides A and C.** Begin with Side A. Position the end panels of Layer 4 on the inside face of Layer 3 so the 45° angles face left. The end panels are flush to the top and sides of Layer 3. Place the center panel in position and make sure it slides freely. Remove the center panel and glue the end panels to Layer 3. Repeat the process for Side C but flip the panels of Layer 4 so the 45° angles face right.



- 8** **Finish assembling Slides A and C.** Begin with Side A. Position the center panel of Layer 4 on Layer 3 with the tab to the left and flush with the top of Layer 3. Hold the panel in place as you flip the assembly over. Glue Layer 2 through the hole in Layer 3 to Layer 4. Layer 2 is at the top of the hole in Layer 3. Glue Layer 1 to Layer 2, allowing a  $\frac{1}{4}$ " margin around Layer 1. Repeat the process for Side C with the tab on Layer 4 facing to the right.



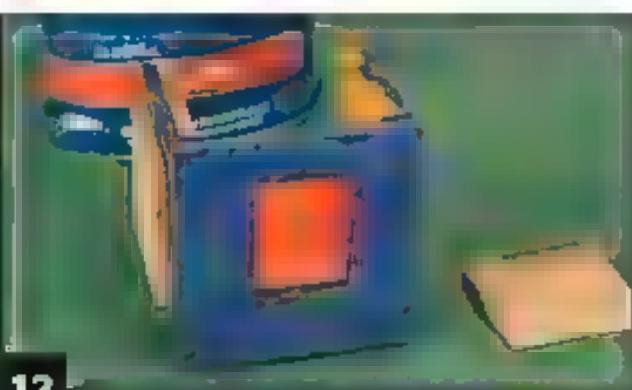
- 9** **Begin assembling the box.** Apply glue to the edge of Layer 3 on the right side of Assembly A and the left side of Assembly C. Glue and clamp Sides A and C to the inside of Layer 3 on Side B. The long sides of the hole in Side B should be parallel to Sides A and C. Align A and C with the edge and bottom of Side B. The top of Side B is above the tops of Sides A and C.



- 10** **Attach Side F to the assembly.** Glue and clamp Layer 3 of Side F to Layer 3 on Sides A, B, and C with the long sides of the hole parallel to Sides A and C. Slide Layer 1 on Sides A and C away from Side F. Dry fit Layer 4 of Side B so it rests on Layer 3 of Side F. Slide Layer 4 of Side F in to meet Layer 4 of Side B. The tabs on Layer 4 of Sides A and C align with the slots in Layer 4 of Side F.

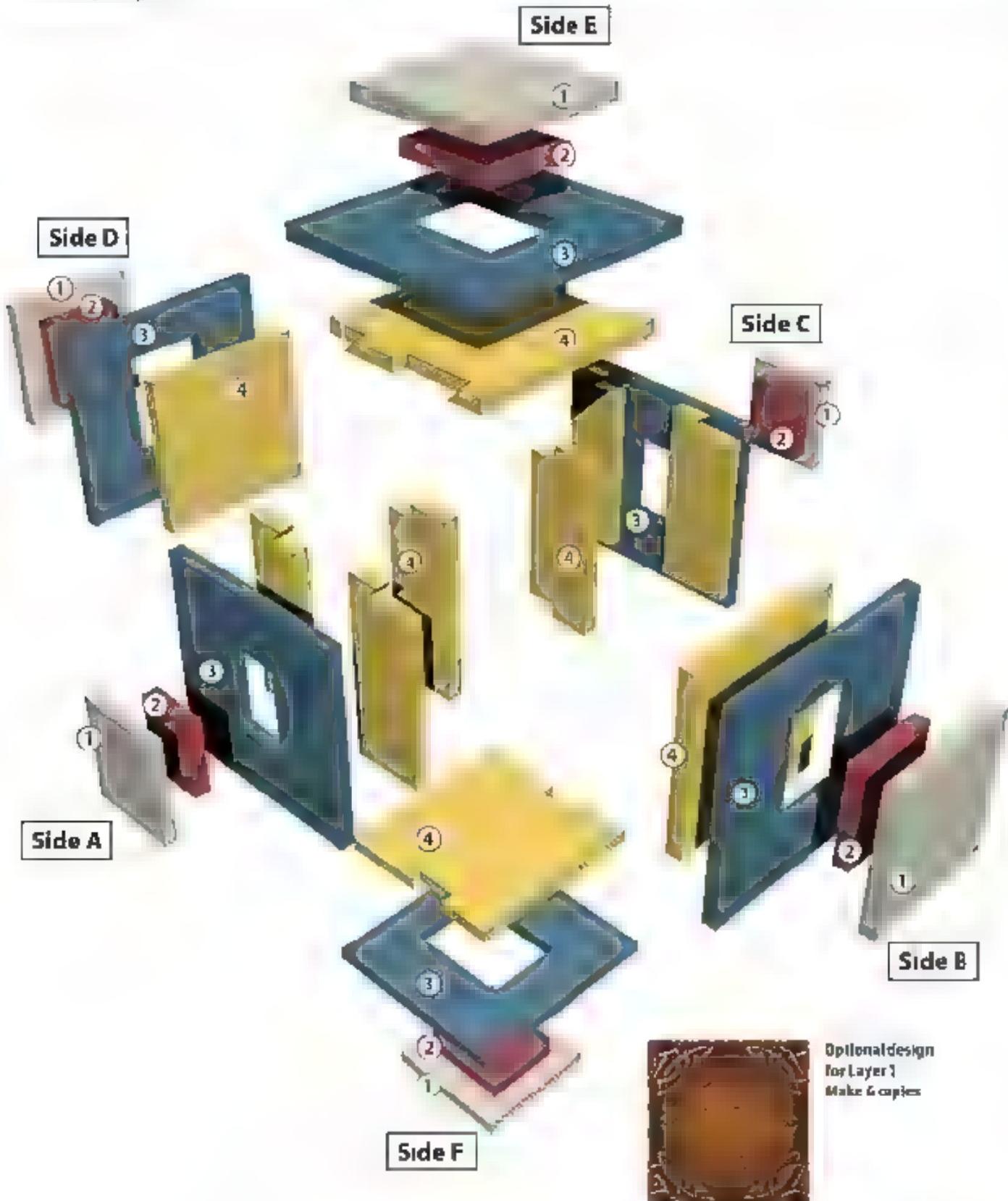


- 11** **Assemble Side F.** Hold Layer 4 in position. Glue Layer 2 to Layer 4 through the hole in Layer 3. Place Layer 2 flush to the side of the hole in Layer 3 farthest from Side B. Glue and clamp Layer 1 to Layer 2. Layer 1 is centered between Sides A and C and positioned  $\frac{1}{4}$ " in from the edge of Layer 3 that is farthest from Side B.



- 12** **Assemble Side B.** Remove Layer 4 of Side B. Slide Layer 1 of Side F toward Side B and replace Layer 4 of Side B so it rests on Layer 4 of Side F. Glue Layer 2 to Layer 4 through the hole in Layer 3. Align Layer 2 with the side of the hole farthest away from Side F. Glue and clamp Layer 1 to Layer 2. Layer 1 is centered between Sides A and C and  $\frac{1}{4}$ " away from the edge that is farthest from Side F.

## Assembly Diagram



## Materials & Tools

- Make all panels from cherry or wood of choice
- 2 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times 1\frac{1}{8}''$  (layer 3, sides A and C)
  - 4 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times 2'$  (layer 3, sides B, D, E and F)
  - 2 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{3}{8}''$  (layer 2, sides A and C)
  - 4 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{3}{8}''$  (layer 2, sides B, D, E and F)
  - 4 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{1}{4}''$  (layer 4, side F)
  - $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{1}{4}''$  (layer 4, side C)
  - $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{1}{8}''$  (layer 4, side B)
  - $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{1}{8}''$  (layer 4, side D)
  - 4 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times \frac{1}{8}''$  (layer 4, end panels, sides A and C)
  - 2 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times 1\frac{1}{8}''$  (layer 4, center panel, sides A and C)
  - 6 plies  $\frac{1}{8}'' \times \frac{1}{8}'' \times 1\frac{1}{8}''$  (layer 1, all sides)
  - $\frac{1}{8}'' \times \frac{1}{8}'' \times 1\frac{1}{8}''$  (top rail)
- Wood glue  
 • Assorted grits of sandpaper  
 • Light brown stain and varnish or finish of choice  
 • Alterative and printed design (optional)

## Tools

- #5 reverse-tooth blades or blades of choice
- Drill with  $\frac{1}{8}''$  diameter drill bit
- Assorted rasps
- Brushes to apply finish
- Bench knife
- Woodburner or carving tools (optional)

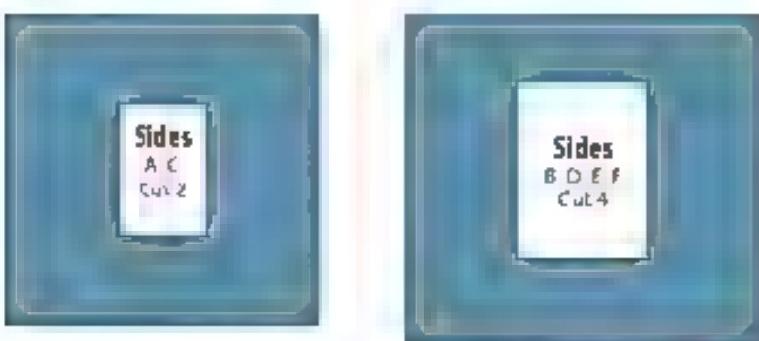
**Layer 1**



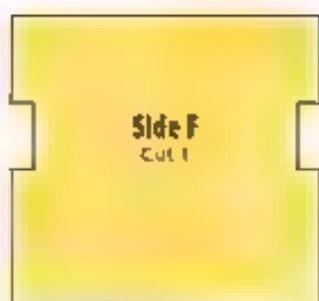
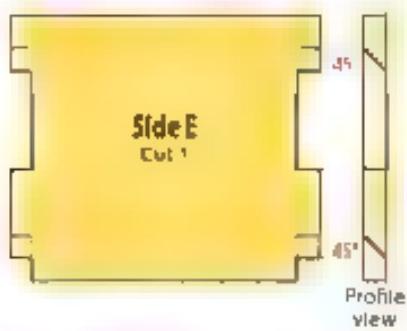
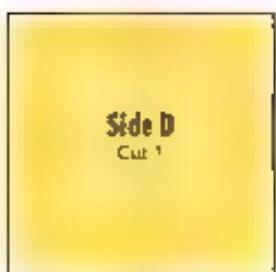
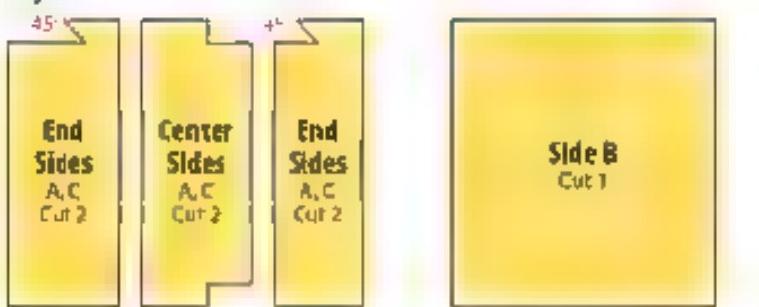
**Layer 2**



**Layer 3**



**Layer 4**



Photocopy at 100%

**Top Rail Side E Cut**

# Secret Chamber Puzzle Box

Clever box with heart-shaped key is easy to make on your scroll saw

By Karl Taylor  
Pine box cut by Ben Fink

During a band saw demonstration at our woodworking club, the instructor said certain projects could only be made with a band saw. Loving a good challenge, I proclaimed anything made on a band saw could also be made on a scroll saw—only smaller, for the next several months, club members proved my assertion by displaying their large projects along with a duplicate version made in miniature. That demonstration and the creativity of my fellow club members inspired this puzzle box. I adapted band saw techniques to meet the scroll saw's capabilities.

I make these puzzle boxes in a variety of sizes and shapes. Once you understand the technique, get creative. As long as the wood will fit your scroll saw, you can use it to make the box. I have made boxes as large as 1" by 1" by 12" and as small as  $\frac{1}{2}$ " by  $\frac{1}{2}$ " by 1". For smaller boxes, you need to use smaller blades.

Before you begin, use a small square to make sure your saw blade is exactly perpendicular to your table. This is critical for proper movement of the box parts. Check to make sure the blade is still square to the table throughout the process.



Remove the key and slide the lid off to reveal the secret chamber.



**1** Cut the box blank to the desired size and shape. You can add round corners, a zigzag shape or leave it square. Choose the most appealing side of the blank for the top of the box. Place a piece of masking tape on the side, indicating the top and bottom.



**2** Cut the bottom of the box. Fold the pattern on the dotted line and attach the pattern to the blank or make a mark  $\frac{1}{2}$ " up from the bottom. Make sure your blade is square to the saw table and cut along the red line. Set the bottom aside for now.



**3** Cut the locking key out of the main section of the box. Draw the key on with a pencil or use the pattern provided. Make keys shaped like hearts, stars, and T's. Cut the key and set it aside.



**4** Cut the box lid. With the key removed from the main box, cut the sliding lid. Follow along the green line on the pattern or draw a similar line on the side of the box. Cut along the line with a #7 reverse-tooth blade. Slide the lid off and set it aside.



**5** Cut the chamber. Draw a line  $\frac{1}{2}$ " in from the edge the entire way around the blank. The line goes around the key slot, as shown with the dotted line on the pattern. Drill a small blade entry hole in one corner and cut along the line. Save both pieces.



**6** Cut the chamber lid. Sketch a line about  $\frac{1}{2}$ " below the top of the solid piece cut in Step 5. Ignore the puzzle label, but follow the general contours. Cut along this line with a #7 reverse-tooth blade. Set the top chamber lid piece (with the puzzle label) aside.



**1** **Check the height.** Before starting, make sure the height of the wood fits under your saw's arm. The cutting height for each piece of this project should be no more than 2".



**2** **Mark the inside area.** The piece that is flat on both sides will form the case of the box. Place this on the table with the widest side up. Using a pencil and ruler, mark straight lines about  $\frac{1}{4}$ " in from the bark on both sides. Also mark similar lines  $\frac{1}{4}$ " from the ends. Round off the corners to make a tartangle on the top of the piece.



**3** **Mark the sides.** Turn the same piece over and, using a pencil, make a straight line about  $\frac{1}{4}$ " from the bark on the two long sides. On the ends of the wood, mark lines that connect the longitudinal lines on the top to the bottom (longitudinal lines). These lines will be used to indicate the amount of table tilt when cutting.

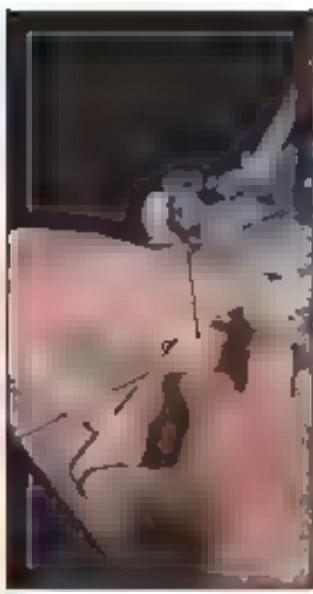


**4** **Drill a blade entry hole.** Place the wood on the saw table in front of the blade. Using the back left hand mark as a guide, push down the right hand side of the table until the blade is parallel with this line. Leave the block of wood where it is on the table and, using a hand drill and a  $\frac{1}{4}$ "-diameter bit, make a blade entry hole somewhere along the left longitudinal line. You should be able to bore vertically. If the drill is too short to go all the way through the wood, make a drift bit from wire. Cut wire that is about the same diameter of the bit and about 3" to 4" long. Sharpen the end on the belt sander into a chisel shape and put it into the drill chuck. You should be able to drill the remainder of the hole with this. Don't drill into the scroll saw table.



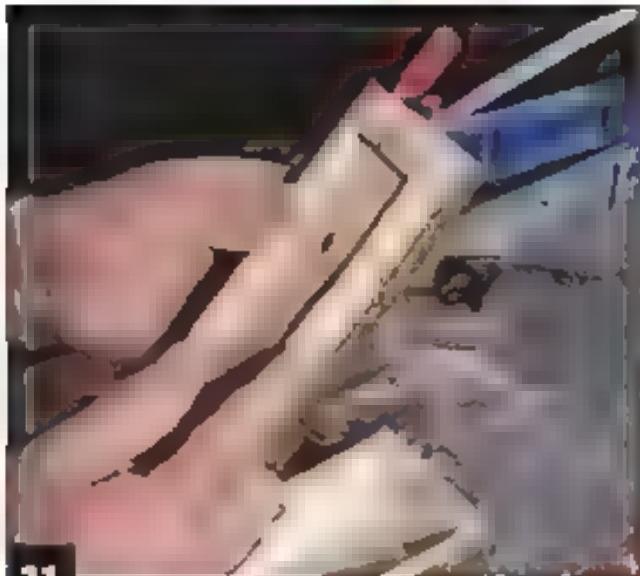
9

**Cut the lid-retaining ring.** Take the top slice and using your pencil and third finger as a guide, mark off a rectangle about  $\frac{1}{4}$ " from the edges. Drill a blade entry hole and cut out the core as done in Step 5.



10

**Sand the lid-retaining ring.** The lid retaining ring will be glued onto the bottom of the lid to hold the lid in place. This lid ring will fit snugly into the top of the box. Using 100 grit sandpaper, gently sand this piece smooth. Also, sand the bottom of the lid.



11

**Attach the ring.** Follow these instructions to help correctly position the lid-retaining ring. Place the lid upside down, and place the box case upside down on top of it. Align the edges of both pieces. Then, take your pencil and mark around where the inner edge of the case meets the underside of the lid. Using wood glue, glue the retaining ring onto the bottom of the lid. To ensure a good bond, apply some pressure. Put the lid and ring down on a flat surface, and then balance something weighing a couple of pounds on top. Allow the glue to dry for a couple of hours.



12

**Attach the bottom and sand.** Using the belt sander, smooth the  $\frac{1}{4}$ " thick rectangle piece, which will be inserted into the box and become the bottom. Glue the bottom into the box. Push the bottom out until it fits snugly. After the glue is dry, you may need to use the belt sander to sand the bottom of the box.



# Mirrored Flower Box with Copper and Patina

## A versatile weekend project

By Donna and Phil Racine

Making this mirrored box is a relatively straightforward process. In fact, you should have no trouble creating it in a weekend or less. The fun part is the finish. The simulated patina and copper add a handsome touch to the mirror and box. We chose to put silk flowers in the box, but it also makes a nice catchall for watches, pins, and clips that tend to collect on your bureau.

**Step 1: Prepare the wood.** Sand and wipe off the dust so it will accept the patterns.

**Step 2. Make copies of the pattern and save the original.** Take the photocopies of the Back, Top, and Box (left, right, front) patterns and spray them with temporary bond adhesive. Attach the patterns to the wood.

**Step 3: Drill blade entry holes in the Top.** Use the  $\frac{1}{8}$ " diameter bit. Thread the #2/0 through a hole and cut it out as indicated on the pattern. Repeat threading and cutting until all of the holes are cut out. Use the 120-grit sandpaper to remove burrs.

**Step 4: Assemble the box.** Put the box together in this order: Front, sides, and bottom. Glue and nail with  $\frac{1}{8}$ " brads as indicated. Do NOT attach the back at this time.

**Step 5. Patina the wood.** Work according to directions in the kit, or finish the individual parts to suit. The patina can be a little messy, so use rubber gloves.

**Step 6: Attach the box to the back.** Use Copper Pattern #1 and fold it along the lines indicated. Insert it into the box and use the epoxy to spot glue the copper into the box. The copper ends run between the back and the inside of the box, which secures the copper. Finish by gluing the bottom and nailing the side with either the  $\frac{1}{8}$ " or the  $\frac{1}{4}$ " brads.

**Step 7: Add the copper circles.** Using scissors, cut twelve  $\frac{1}{8}$ " circles using Copper Pattern #3. Attach the copper circles to the back of the front using epoxy. Make sure the glue stays on the edges and does not run into the center of the copper circle. Center and align the top as desired. Attach the top to the back using  $\frac{1}{8}$ " brads and glue.

**Step 8. Cut Copper Pattern #2.** Attach it to the back using glue, brads, or tape.

**Step 9. Insert the mirror and cardboard backing.** Secure them into the sides with  $\frac{1}{8}$ " brads. If you wish to hang the mirror flower box, simply add a hanger.

**Right Side Lid**

**Left Side Lid**

Cut two copies of this pattern. The blue markings are for the left side; the red markings are for the right side.

**Left Side**

**Right Side**

**Box Front**

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Photocopy at 130%

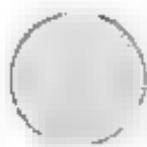
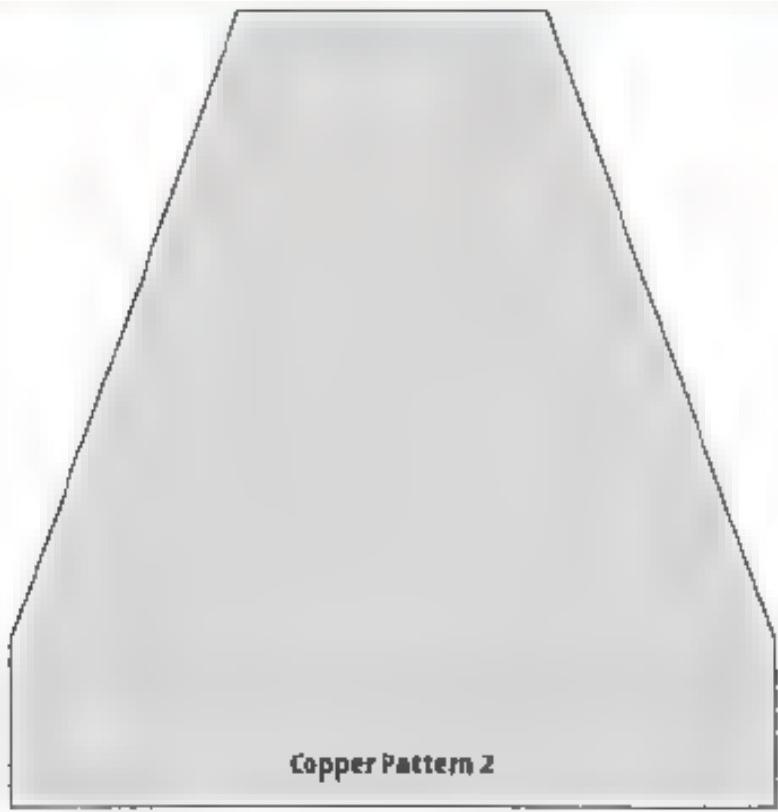
Top

#### Materials:

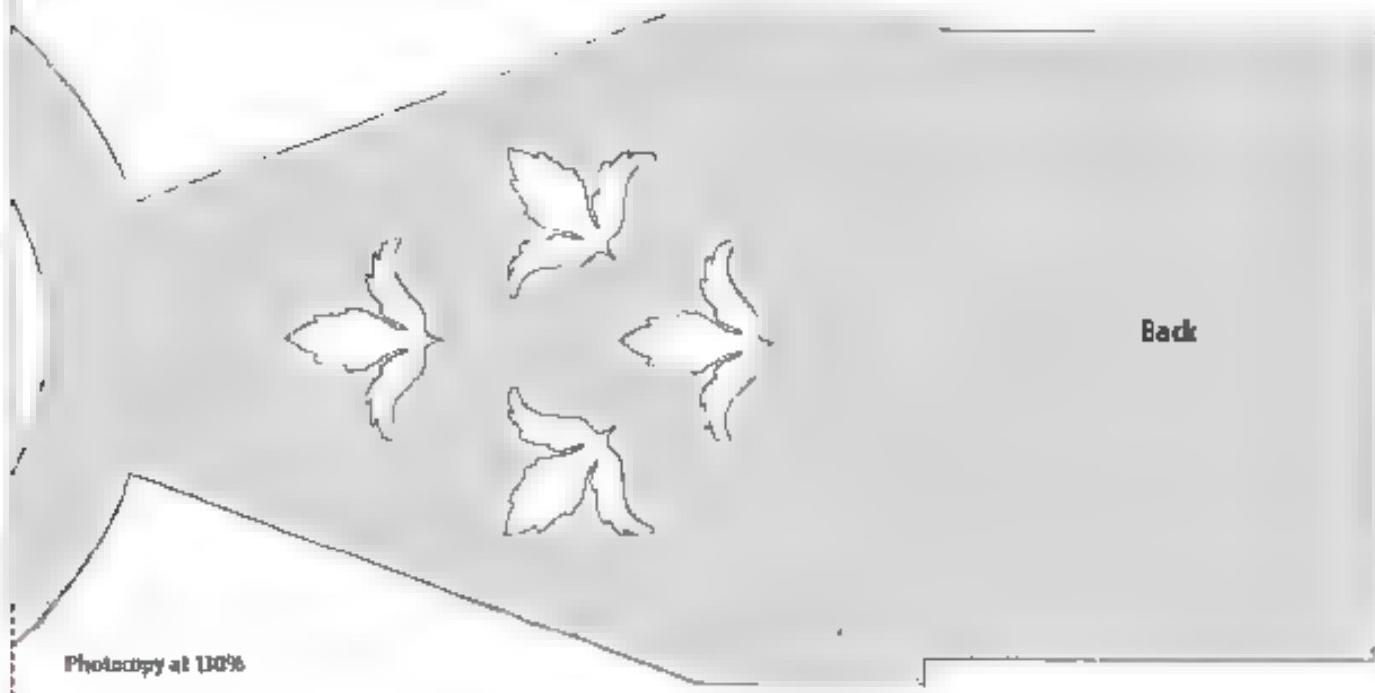
- 1 $\frac{1}{2}$ " x 6" x 15" wood of choice (back)
- 1 $\frac{1}{2}$ " x 9" diameter wood of choice (top)
- 1 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 5" wood of choice (box front)
- 1 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 9" wood of choice (left and right sides)
- 1 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " wood of choice (bottom)
- 9 $\frac{1}{2}$ " x 12" copper sheet, medium weight
- 10" x 4 $\frac{1}{2}$ " diameter cardboard (mirror backing)
- 1 $\frac{1}{2}$ " and 1 $\frac{1}{4}$ " brads
- Temporary bond spray adhesive
- Sandpaper, 120 grit
- Epoxy of choice

#### Materials & Tools

- Masking tape
  - Wood glue
  - Patina or finish of choice
  - Rubber gloves
  - Hanger (optional)
- Tools:**
- Drill with 1 $\frac{1}{2}$ "-diameter bit
  - #2/0 reverse-tooth blade
  - Screwdriver
  - Dust mask
  - Eye protection
  - Painter's mask



Photocopy at 100%



# Magazine Storage Case

Easy to make cases solve your magazine and pattern storage problems

By Dennis Simmons



If you're like me, there's a pile of back issues of *Scroll Saw Workshop/ Scroll Saw Woodworking & Crafts* next to your favorite chair—the rest are gathering dust on the corner of the workbench.

The management of our home (my lovely wife) suggested I get them organized in this project is my solution. These magazine storage cases keep the magazines neat and clean and look nice on the family book shelf.

The storage case is a simple box that's open in the back. The design includes an optional divider panel so pattern insert sections can be stored along with the magazines.

Begin the project by cutting all of the pieces to the dimensions listed in the materials list. I use a piece of poplar for the decorative front and pine and plywood for the remaining pieces. Mark a centerline on the pattern and the blank to make it easy to align the two properly. Transfer the pattern to the blank, using your method of choice.

**Note:** Not all 1/4"-thick plywood is a full 1/4" thick. Most commercial plywood is actually 5mm thick, which is closer to 1/16". The patterns and dimensions listed here are for 5mm-thick plywood. If you use true 1/4"-thick plywood, you may need to adjust the dimensions accordingly.

## Materials:

- 4" x 4" x 12' poplar (center board)
- 4" x 3 1/2" x 1 1/4" pine (backing board)
- 4 pieces 3/4" x 3 1/2" x 9 1/2" pine (top and bottom)
- 4" x 8 1/2" x 12" plywood (divider panel)
- 2 pieces 14" x 9 1/2" x 12" plywood (side panels)
- Glue stick, temporary bond spray adhesive, or transfer paper (to transfer pattern to blank)
- Wood glue
- Cyanoacrylate gel glue
- 18 brads (small nails)
- Sandpaper, 150 grit
- Polyurethane varnish

## Tools:

- 10 skip-tooth blades or blades of choice
- Drill with 1/4" diameter twist bit



1

**Cut the letters using a #8 skip-tooth blade.** Drill the blade entry holes using a  $\frac{1}{8}$ "-diameter twist bit and remove any burrs. Cut the centers from letters such as o, p, and e first and set them aside to be glued back in later. Sand off burrs on the back after cutting each letter.



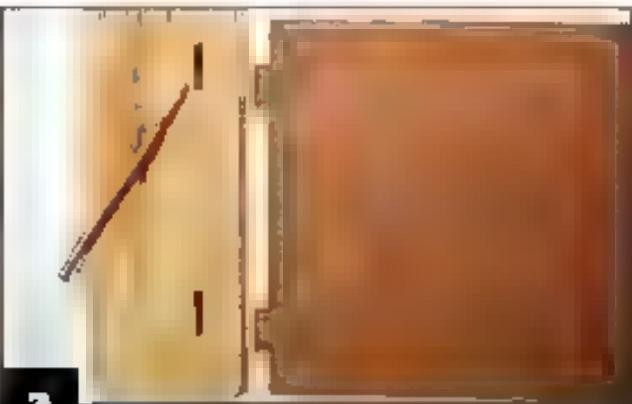
4

**Assemble the storage case.** Apply a little wood glue on the edges to be joined and secure with a few brads while the glue dries. Attach the top to the backing board. Insert the notches of the divider panel into the mortises, and attach the bottom to the backing board.



2

**Glue the letter board to the backing board.** The backing board wood color should contrast with the decorative front. Mark guidelines  $\frac{1}{2}$ " from the edges on the back of the decorative front and apply wood glue inside those guidelines. Clamp the backing board in place until dry. Attach the centers cut from the open letters with a few drops of cyanoacrylate glue. Hold the pieces in place with tweezers for 5 to 20 seconds while the glue dries.



3

**Cut the notches and mortises for the divider panel.** Use the scroll saw to cut notches in the divider panel and rectangular mortise holes in the top and bottom pieces as shown on the pattern.



5

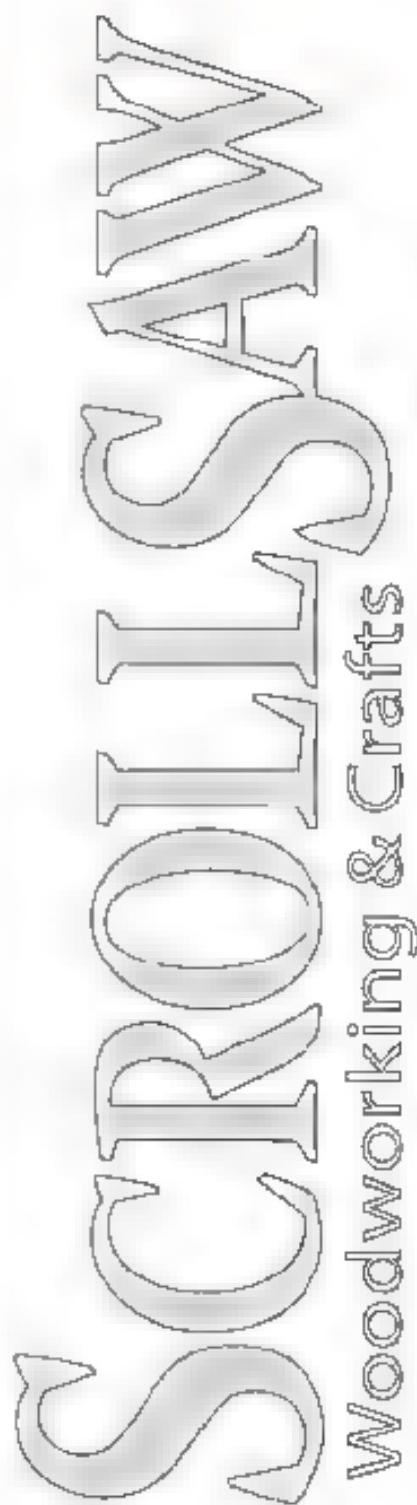
**Finish the cases.** Attach the side panels with glue and brads and allow them to dry. Sand all of the surfaces with 150-grit sandpaper. Then, finish the project with three coats of shellac polyurethane varnish or your finish of choice.



Notch Pattern



Top and Bottom Pattern



Woodworking & Crafts

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# Ribbons and Bows Box



**Easy compound-cut bow adds elegance to this custom gift box**

By Corale Rothman



Decked out with ribbons and bows, this stunning box adds a personal touch to the presentation of a special gift. It can also be used as a jewelry or rinket box or as a candy dish.

I combined my knowledge of scrollng with my experience making sugar paste bows for cakes. The result is a gift box with a bow that looks so real, people touch it to be sure it's really made of wood.

The project consists of two parts: a hinged box embellished with a ribbon, and a compound-cut bow. Careful alignment of the parts and thorough sanding are the keys to a beautiful project.

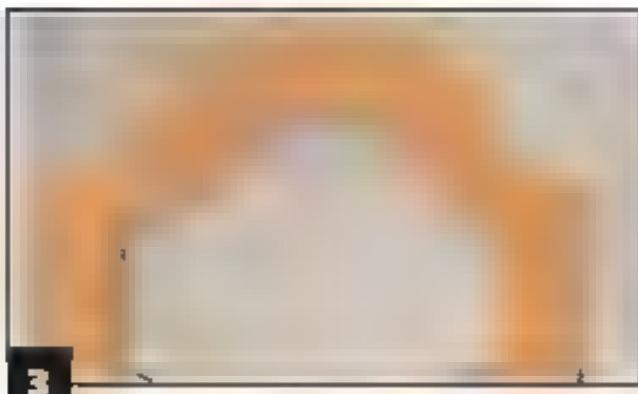
You can use a solid color wood for the ribbons, but the laminated blanks used to create the striped effect add to the charm of this project. The blanks are made from cherry and purpleheart glued together in an alternating pattern. To create the blanks for the flat ribbons and the tails, glue and clamp two  $\frac{1}{8}$ "-thick strips of purpleheart on either side of a  $\frac{1}{4}$ "-thick strip of cherry. The blank for the ribbon loops is made the same way, but additional  $\frac{1}{8}$ "-thick strips of cherry are glued on the outside edges to get the full 1" width (see the materials list for full dimensions).



**1** **Cut the inside of the box.** Attach the pattern to the wood with spray adhesive and cover the pattern with clear packaging tape. Drill a  $\frac{1}{8}$ " diameter blade entry hole inside the box and cut along the inner line with a #9 reverse-tooth blade. Remove the fuzzies on the bottom with sandpaper. Sand the sides smooth. Do not remove the pattern.



**2** **Create the lid liner.** Trace the inside of the box onto the lid liner stock. Make a small pencil mark on the inside of the box and on the liner stock for easier alignment. Cut along the traced line with a #13 reverse-tooth blade. Sand the edges smooth so the liner fits just inside the box. The liner keeps the lid aligned properly so the ribbons look realistic.



**3** **Cut the center of the lid liner.** This will prevent the lid from warping. Draw a line  $\frac{3}{8}$ " in from the outside edge of the lid liner. Drill a blade entry hole and cut out the center of the lid liner. Sand the lid liner smooth.

## TIPS

### SHARP INSIDE CORNERS

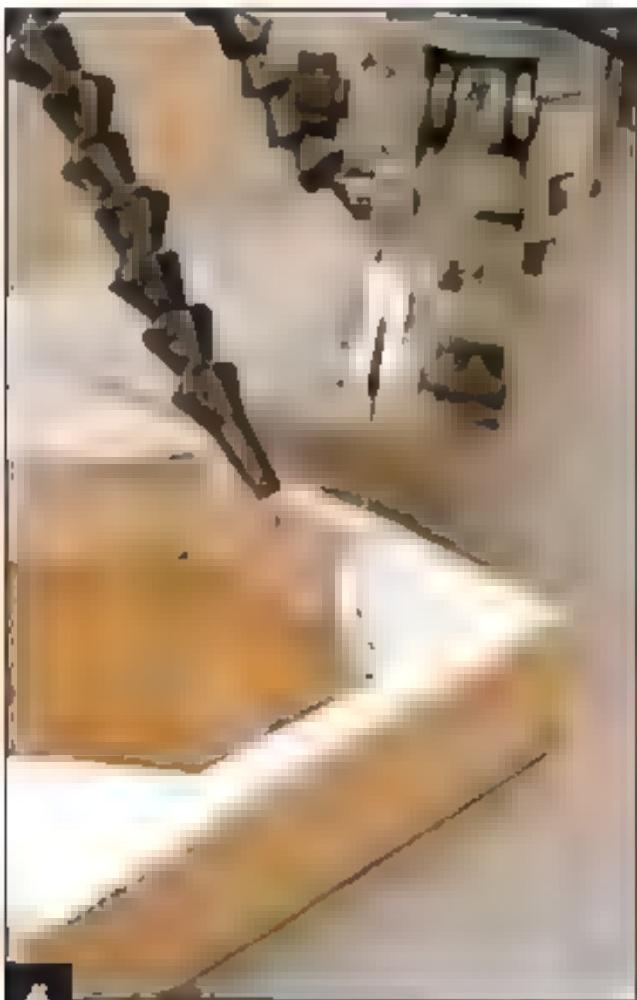
*Cutting a clean corner with a large blade and thick wood is a four-step process. Cut to each corner, back off, then cut a gentle curve to the next side. Go back and cut into the corner from the other direction after the interior waste has been removed.*

### BLADE ENTRY HOLE

*Use the blade entry hole to form the inside curve of the ribbon loop. This reduces the need to make sharp turns in the thick, laminated stock.*

### PRECISE GLUING

*Use a glue syringe so you can put the glue exactly where you want it when gluing the loops and tails. I use glue that sets up quickly and dries clear.*



**4** **Complete the body of the box.** Glue and clamp the box sides to the box bottom stock. Align the grain of the box sides and the box bottom. Cut along the outer line of the box with a #12 reverse-tooth blade. Sand the outside of the box smooth.

### Assembly and Finishing



11

**Attach the flat top ribbons.** Mark the center of each flat side on the lid and box. Cut a flat ribbon  $\frac{1}{8}$ " longer than the width of the lid, with a 45° angle on each end. Position the ribbon on the centerline and measure from the ribbon to the box edge on the other centerline. Cut two more strips, each  $\frac{1}{16}$ " longer than this measurement, with a 45° angle on one end. Glue the ribbons on the lines, angled-side down. The ribbons hang  $\frac{1}{8}$ " over the edges.



12

**Attach the four side ribbons.** Cut the side ribbons about 1" longer than the height of the box and lid. Cut one end of each at a 45° angle. Position the angled end against the angled end of the top ribbon. Mark the bottom of the lid and the bottom of the box. Cut each ribbon on the lines and glue the pieces to the lid and the box side. After the glue dries, place the lid on the box and sand the ribbons smooth. Round the top and bottom edges of the ribbons.



13

**Attach the tails to the lid.** Dry fit the tails on the lid and adjust the length and fit of the pointed end with sandpaper. Apply glue to the pointed ends and position them on the lid. Prop the ends up with blocks of foam or wood until the glue dries. Dry fit five loops in a ring around the intersection of the top ribbons. Sand the sides of the loops to make them fit tightly together.



14

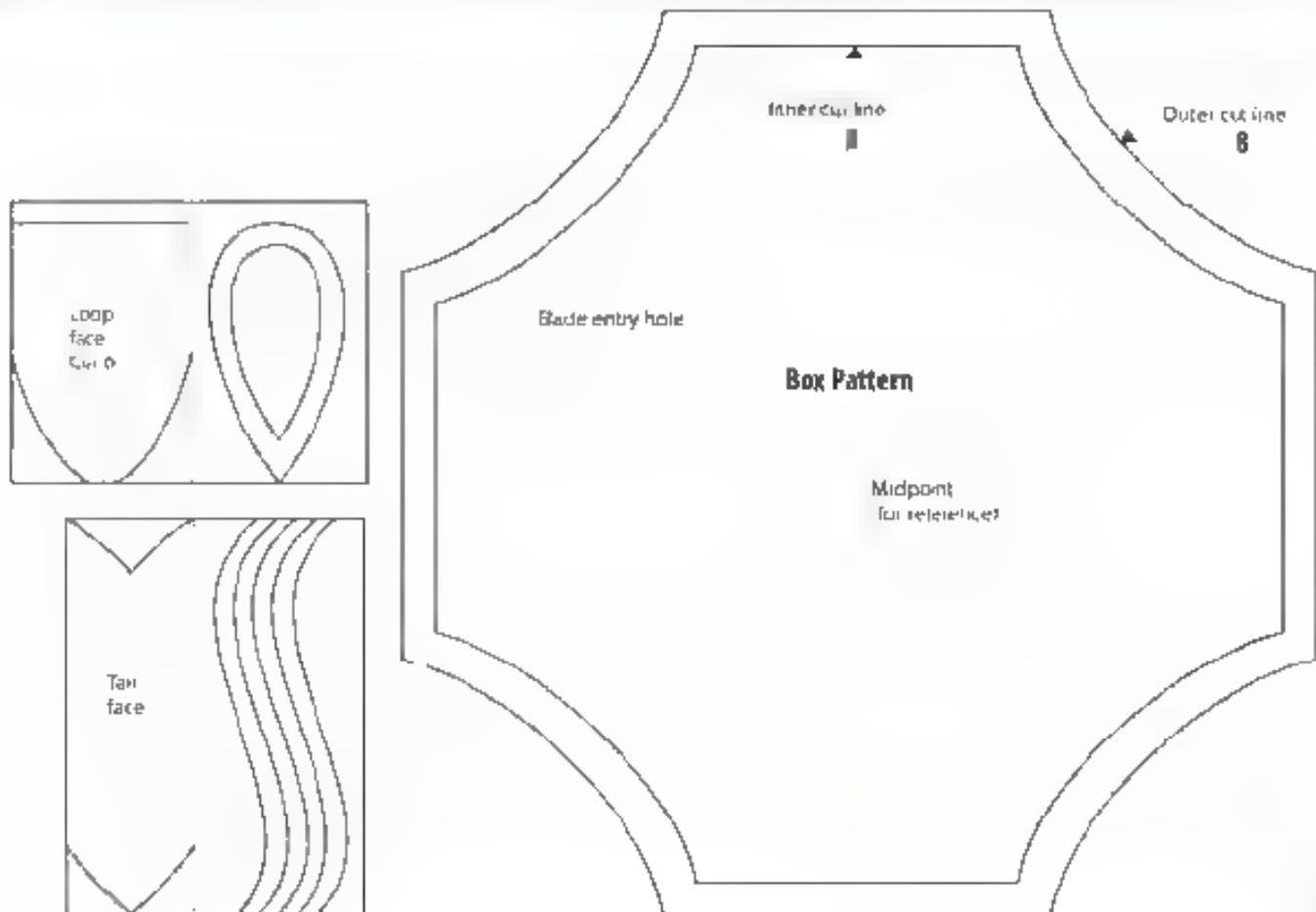
**Attach the loops.** Glue the loops in place. Sand the point of the remaining center loop to shorten and flatten it. Glue it in place in the center of the ring of loops. Carefully rub the entire box down with #0000 steel wool to remove any remaining fuzz or scratches. Then, apply several coats of spray shellac or your finish of choice. A spray finish is easiest to apply because of the ribbons.



### Variations

Use the same lamination series for the loops and ribbons or use a solid color for both. You can cut the flat ribbons very thin and use a butt joint where the top meets the sides of the box instead of a miter joint.





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#### Materials:

- Temporary bone-spray adhesive
- Wood glue (I use Woodbond)
- Plastic glue syringe (precise glue placement)
- Super packing tape
- Assorted grits of sandpaper up to 320 grit
- Spray shellac (gloss) or finish of choice
- 10000 stem wool

#### Box:

- 1" to 1 1/4" x 6" x 6" mahogany or walnut (box sides)
- 2 pieces 1" x 6" x 6" mahogany or walnut (bottom and lid)
- 4" x 5 1/2" x 5" Baltic birch plywood or wood of choice (lid inner)

#### Materials & Tools

##### Tools:

- #3, #9, and #12 reverse-tooth blades or blades of choice
- Drill
- 4" diameter drillbit
- 1/2" diameter brad point drill bit
- Vertical and spindle sander or sanding blocks
- Support blocks (clamping)
- 2 clamps, 6" (compound C-clamp, chin ribbon)
- Clamps for gluing box and lid
- Scraps of foam or wood (to support tails while glue dries)

# Contributors

## Robert Ardizzone

Robert lives in Holland, Mass., and designs projects for his six children and 14 grandchildren.

## Kenneth Campbell

Ken lives in Delano, Calif., and won SSW's Best Project Design contest.

## Sue Chrestensen

Sue enjoys spending her time designing and pursuing her love for scroll sawing and is the founder of the ASN group for Scroll Saw Crafters. [www.chrestensenlurhphantdesigns.com](http://www.chrestensenlurhphantdesigns.com)

## Rick and Karen Longabaugh

Rick and Karen run The Berry Basket and Great American Scroll Saw Patterns. [www.greatamericanscrollsaw.com](http://www.greatamericanscrollsaw.com)

## Gary Mackay

Gary lives in Myrtle Beach, S.C., and enjoys gardening and golf.

## Paul Meisel

Paul resides in Macel, Minn., where he is an ant woodworker and designer.

## Sue Mey

Sue lives in Pretoria, South Africa. [www.scrollsawworld.com](http://www.scrollsawworld.com)

## John A. Nelson

John, a prolific scroller and designer, contributes frequently to *Scroll Saw Woodworking & Crafts*. [www.sawdustjumper.com](http://www.sawdustjumper.com)

## Joe Proctor

Joe lives in Massau, N.Y., with his wife, Lianne, and runs a part-time business called Joe-Li Creations.

## Donna and Phil Racine

Donna and Phil live in Ascutney, Vt., and operate P & D Woodworking and Design from their home. [www.woodscoupanercenter.com](http://www.woodscoupanercenter.com)

## Carole Rothman

Carole, of Somers, N.Y., is a retired psychologist and college professor and is also an award-winning cake decorator.

## Dennis Simmons

Dennis, author of *Making Furniture and Dollhouses for American Girl and Other 18-Inch Dolls*, lives in Rushville, Ind. [Anforsimmons@bellsouth.net](mailto:Anforsimmons@bellsouth.net)

## Jim Stirling

Australian born Jim is known for using his unique relief techniques to scroll collapsible cartons. He lives in Norway. [www.stirling.no](http://www.stirling.no)

## Karl Taylor

Karl is a self-taught scroller and an active instructor from Lawrenceville, Ga., who gives demonstrations for DeWalt, PS Models, and Dremel.

## Diana Thompson

Diana, who lives in Theodore, Ala., is a prolific scroller and designer. [www.scrollsawinspirations.com](http://www.scrollsawinspirations.com)

## Dave Van Ess

Dave, of Arlington, Wash., started woodworking more than 30 years ago and has taught classes in scroll sawing.

## Bruce Viney

Bruce, of Washington, England, enjoys designing and making puzzles and puzzle boxes. [www.bruceviney.puzzles.co.uk](http://www.bruceviney.puzzles.co.uk)

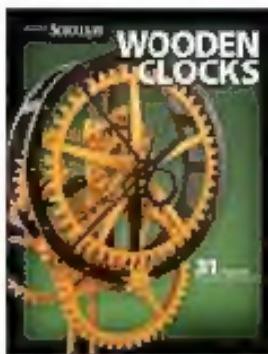
## Joan West

Joan makes her home in Cedar Rapids, Iowa, and loves making functional projects in wood.

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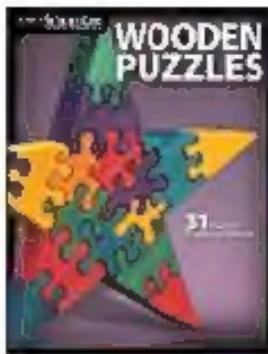
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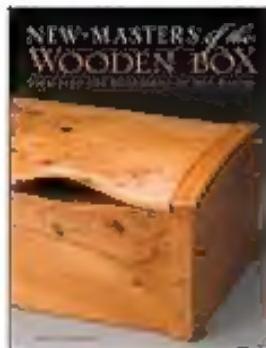
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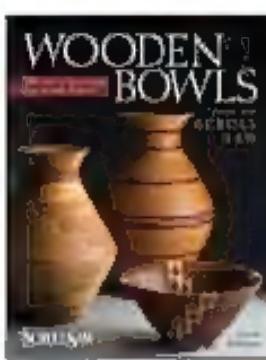
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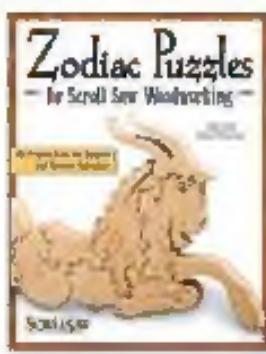
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